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# Smithsonian Year

1984



*Smithsonian Year • 1984*

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THE BRIGGS TO  
THE MICHIGAN STATE



# *Smithsonian Year • 1984*

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ANNUAL REPORT OF THE  
SMITHSONIAN INSTITUTION  
FOR THE YEAR ENDED  
SEPTEMBER 30, 1984



*Smithsonian Institution Press • City of Washington • 1985*



Frontispiece: During the past twenty years under Secretary Ripley's guidance, the Smithsonian has been dedicated to reaching out to the public at large. At the same time, the boundaries of museum activities have been extended beyond the monumental buildings to the Mall and other spaces outside. Exemplifying this spirit, the photos on the preceding pages show (*left*) one of the posters at Washington bus stops that promoted a major exhibition at the Freer Gallery celebrating the 150th anniversary of the birth of James McNeill Whistler and (*right*) a nineteenth-century bandstand, a gift from the State of Illinois, which was installed in the outdoor amphitheater near the west end of the National Museum of American History during the early summer of 1984.

## *The Smithsonian Institution*

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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*  
George P. Shultz, *Secretary of State*  
Donald Regan, *Secretary of the Treasury*  
Caspar W. Weinberger, *Secretary of Defense*  
William French Smith, *Attorney General*  
William P. Clark, *Secretary of the Interior*  
John R. Block, *Secretary of Agriculture*  
Malcolm Baldrige, *Secretary of Commerce*  
Raymond J. Donovan, *Secretary of Labor*  
Margaret M. Heckler, *Secretary of Health and Human Services*  
Terrel H. Bell, *Secretary of Education*  
Samuel R. Pierce, Jr., *Secretary of Housing and Urban Development*  
Elizabeth H. Dole, *Secretary of Transportation*  
Donald P. Hodel, *Secretary of Energy*

# Board of Regents and Secretary • September 30, 1984

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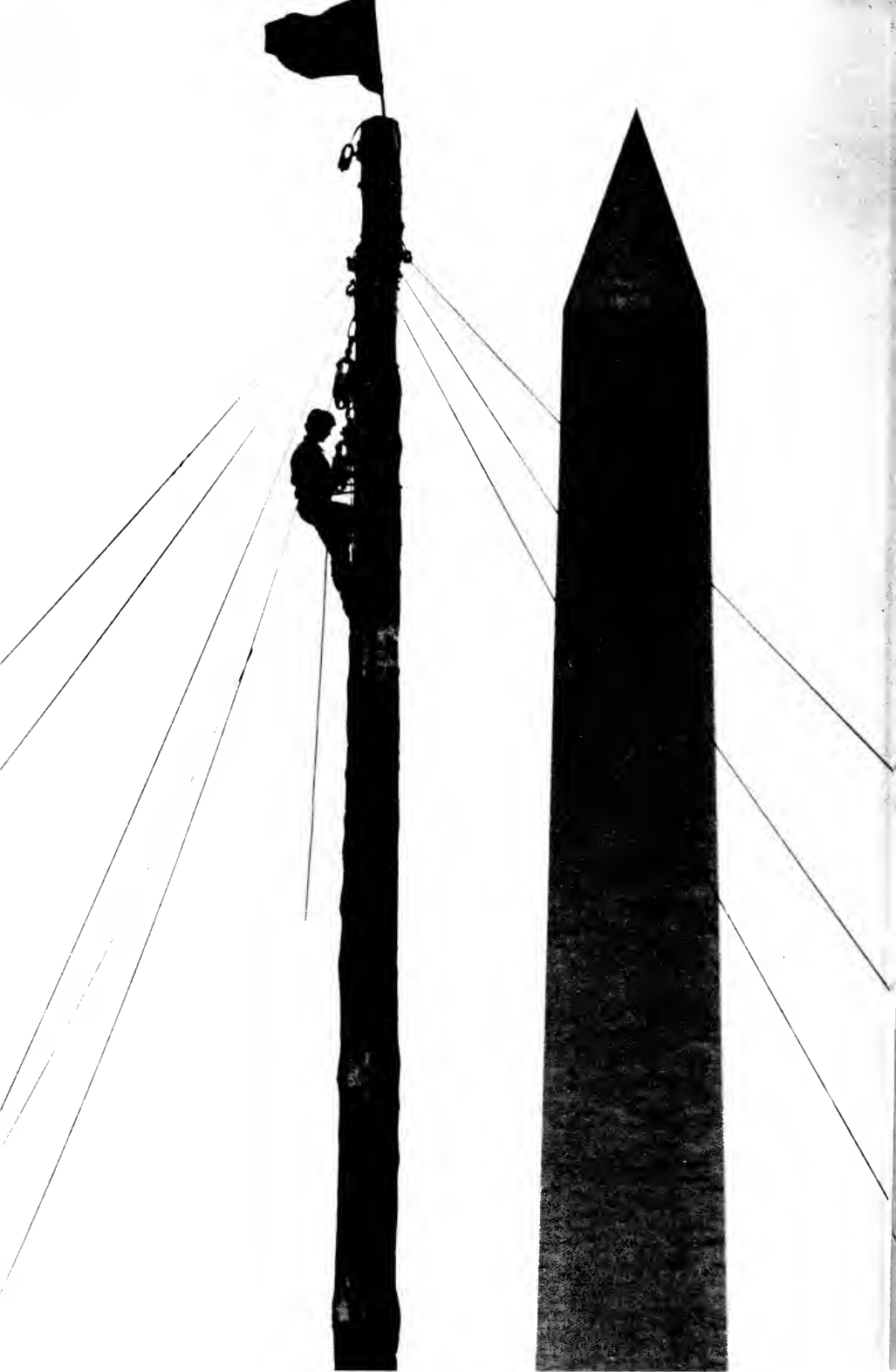
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SMITHSONIAN YEAR • 1984

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STATEMENT BY THE SECRETARY

*The Smithsonian Institution • 1985*



Gary Winnop of Sitka, Alaska, checks rigging at the 1984 Festival of American Folklife. Native Alaskan basketry, doll making, wood and ivory carving, gold-mining, logging, music, and dance were among the traditions presented to mark Alaska's twenty-fifth anniversary of statehood.

## Preface

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ROBERT McC. ADAMS

Institutionally, the Smithsonian is unique. Its stockholders, to stretch the term but slightly, are the people of the United States. This *Smithsonian Year* is a report to the people on the achievements and problems of fiscal year 1984.

I had the great honor of becoming the Smithsonian's ninth Secretary a mere thirteen days before the end of that year. This, then, can only be a letter of transmittal. Appropriately, the traditional Statement of the Secretary introducing this report is penned by the distinguished scientist, educator, and administrator who led the Smithsonian not only through all but a few days of fiscal year 1984 but also through two momentous decades before that.

It was a period of rich development and meaningful growth. Under Dillon Ripley's guidance, the Institution was able to open doors and windows, both literally and figuratively. The doors of a string of new museums were thrown open; windows to the minds of millions were opened through a range of imaginative exhibitions, programs, and publications. Research blossomed, and results in scholarship were impressive.

The years ahead will be years of challenge in a changing world, a changing economy, changing educational and cultural priorities. I am confident that the Institution, building upon the Ripley heritage, will continue to be faithful to its mandate to increase and diffuse knowledge for the benefit of humankind.



# *Time Present and Time Past Are Wrapped in Time Future*

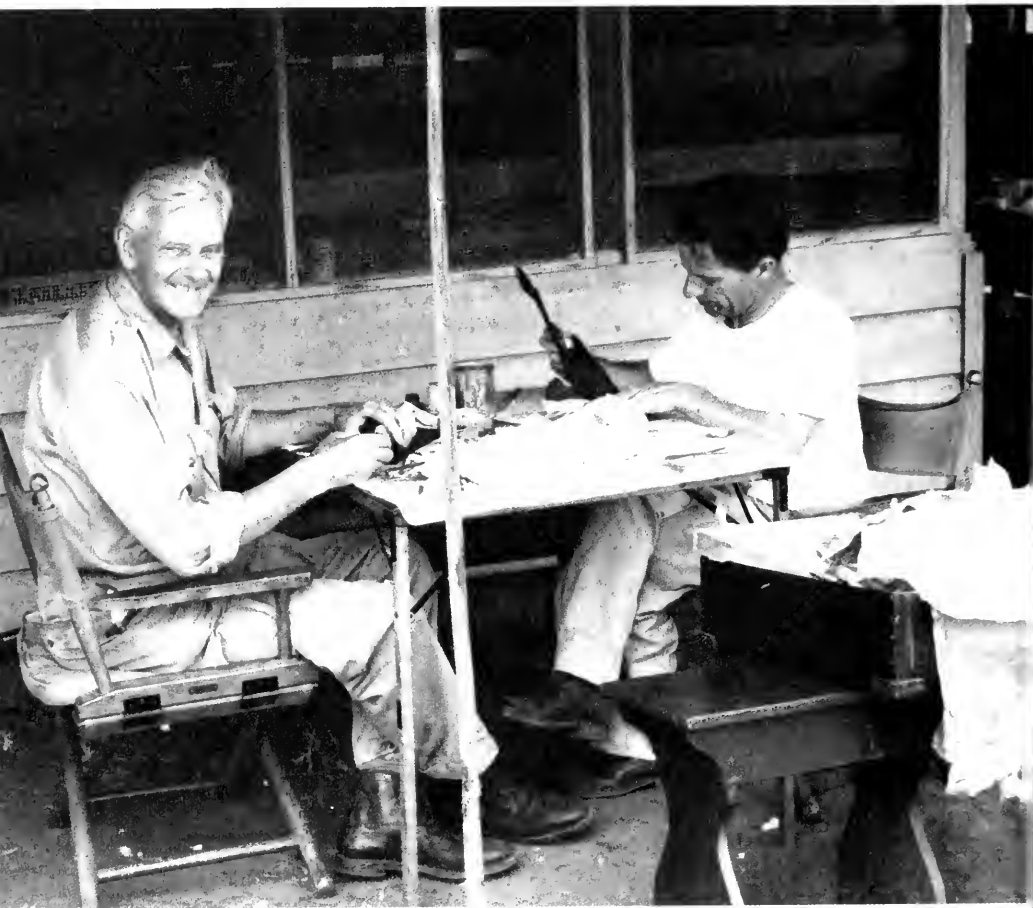
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S. DILLON RIPLEY

"Gentlemen [and Ladies]: I have the honor to submit a report showing the activities and condition of the Smithsonian Institution and its branches. . . ." Thus, in the manner of the first seven Secretaries, I greeted the Regents in 1964. Having served rhetorical formality, I am honored to begin my final report. There is certain comfort in tradition, after all, an accustomed fit like an old tweed coat against the drafts of new circumstance. Tugging precedent around my shoulders, I recall that my immediate predecessor, Leonard Carmichael, reported on his first ten years *en bloc*. So I am pleased to follow his worthy example and review the past score years, as long a term as anyone save our paradigm, Joseph Henry, was privileged to serve. It is a pleasure here to hand on the Smithsonian torch to the excellent successor to us all, Robert McCormick Adams.

Looking backward—a proven way to take one's bearings in the woods or when putting out to sea—I am astonished to observe how far we have come since 1964, a landmark year on many fronts. In January, Dr. Carmichael had paved the way for the opening of the Museum of History and Technology, ably assisted by Frank Taylor, that museum's first director; a national cultural center proposed by President Eisenhower was renamed for John F. Kennedy and placed under the Smithsonian aegis; some 10 million visitors entered our buildings on the Mall; three cubs were born to Mohini, the white tiger at the National Zoo; 1.2 million specimens were acquired, some six hundred of them donated by the still-active sixth Secretary, Alexander Wetmore. Also in that year, no doubt emboldened by my relative youth, I expounded the following thought: "*Museums and their related laboratories are just entering a new era, and museum resources are being drawn upon as never before for general education.*" [Emphasis belated.]

Twenty years later, I relish the memory of what was in the air—an electric and electrifying energy like a summer storm over



Alexander Wetmore (*left*), the sixth Secretary of the Smithsonian Institution, and Watson M. Perrygo prepare bird skins at La Jagua Hunting Club near Chico, Panama, in this 1949 Smithsonian Institution Archives photo.



the great plain of the then empty Mall. It boded so well in many respects: the promise of enriching activity, like warm rain to nourish the crop of human potential. President Kennedy's clarion call to a New Frontier still echoed noble challenges as the Peace Corps reached its stride, and the Great Society agenda was gathering force. The new National Council on the Arts was conceiving the Arts and Humanities Endowments that would grow mightily during President Nixon's administration. America was "busting out all over" in 1964, not only at the Smithsonian but everywhere. It is fitting to remember that all the energy was not wisely spent; that a well-intentioned nation blundered into the Vietnam misadventure. The nation and its leaders were not faultless in that highly charged decade (or any other), but the common failings then were neither timidity nor conformity. Even around the Smithsonian—especially here, I believe—one sensed a kind of estival energy.

Perhaps one had to have been here in the dead of institutional winter to appreciate it. Again "look backward lest we fail to mark the path ahead." Early in the Second World War, I had passed through the Museum of Natural History and found it as stifling as my wartime destination in the Southeast Asian forest. The administrator of the museum was unaffectionately known as the "Abominable No-man" for his unwavering diligence in barring the door against innovation, while the curatorial staff was preoccupied with housekeeping and the conduct of bureaucracy. Yet by 1964, a new generation of curators was emerging. Perhaps they represented a phylogenetic leap or, more likely, were boosted by the winds of productive adventure blowing across the land.

Raising our sights two decades ago, we surveyed the world of science, history, and art from the Castle and realized our discovered goals were not so much new ambitions as renewed intentions to realize the Institution's ancient promise. We found one challenge in Secretary Henry's aim to make the Smithsonian a center for "enlarging the bounds of human thought"; another in his boast that "we have from the first kept a keen eye on every discovery of science and every invention in art"; a third in his vision for a "College of Discoverers." Nor could we forget the mighty mandate of the legator himself "to found in Washington an Institution for the increase and diffusion of knowledge."

First among my aims was the basically democratic one to make the Smithsonian known to its owners, the American people and by extension all humankind. The public had come to view the Smith-

sonian as a dusty vitrine containing insects impaled on little pins, their names penned in a language as dead as the halls' appeal. We wanted to invite people in, to make them welcome, to accomplish the museum's principal work of attracting men, women, and children to exhibits and activities that stimulate the soul and the intellect.

Second, if the Smithsonian were to claim its rightful place among learned societies, the deprivations of its own staff must end. It behooved us to appreciate the men and women who in some instances labored in Dickensian gloom, and behooved us specifically to create both an atmosphere in which they might thrive and an outlook that would attract gifted successors.

Third, a fair reading of the founder's will and a quick study of the Institution's history showed substantial gaps in the curriculum. Both the original mandate and the precedents of practice encouraged us to find or create ways to fill those gaps, as for example in art, environmental science, and aeronautica.

Finally, it was incumbent on America's preeminently national museum complex to take its place as a leader both in this country and abroad.

Not surprisingly, these interrelated goals answered problems that were connected. Over time an original premise of the place had turned topsy turvy: privately supported by a single bequest, the Institution had received from Congress a tiny sum in 1855 to pay for tending some miscellaneous collections, but now that stipend had mushroomed until the government provided 90 percent of the budget. No wonder the public didn't see the Smithsonian as their own; it belonged to the Feds. If people came to know the Smithsonian better, we reasoned, not only would they profit personally and intellectually but they might come to support it more. In time, then, we might restore an organization supported equally by private persons and the government.

There is a footnote to history, perhaps, in a memo written to me in 1981 by our then treasurer, Chris Hohenlohe: "In reviewing some historical material on Smithsonian budgets, I discovered the interesting fact that the operating budget for the current fiscal year, 1980—just under \$200 million—is equivalent to the total of all operating expenditures of the Smithsonian for the years 1847 through 1963. Put another way, you will be overseeing a budget in this year alone which equals all of the moneys spent by your seven predecessors. Since your incumbency, you have already been responsible for overseeing 87 percent of all of the Smithsonian's



*Above:* Ralph Chapman, researcher in the Paleobiology Department of the National Museum of Natural History, leads a Resident Associate parent-child class about dinosaurs while the participants make plaster casts of a dinosaur-like animal. (Photograph by Lillian O'Connell) *Below:* Roger Morigi, a retired master stone carver at the Washington Cathedral, lets young visitors try their hand at carving as part of "The Grand Generation: Folklore and Aging" program at this year's Folklife Festival on the Mall.

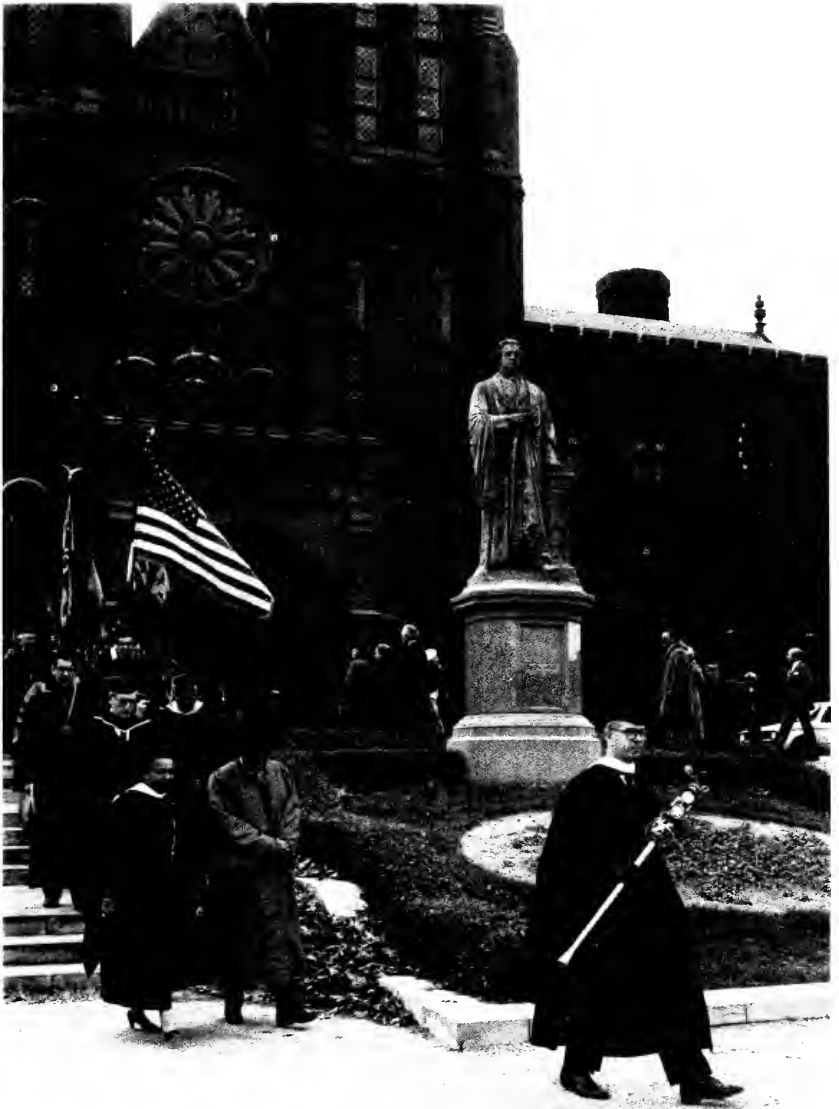


operating expenses since 1847. . . .”

Personnel problems were also linked to the dependency on federal appropriations. For reasons lost in the ossuaries of history, every Smithsonian employee was a federal worker first and a scholar, scientist, or technician second. The terms of employment did not necessarily address the career concerns of scholar or scientist. It was clear that we had to find ways to compete with universities and other research institutions, to offer not only laboratory space, but staff assistance, publishing opportunity, and higher salaries which perforce must be funded from new private endowments. As a virtual ward of the government, the Institution might eschew individual enterprise and intellectual initiative. It behooved us to encourage our people in the unfettered pursuit of professional interests.

Looking back over these twenty years is like studying a great tapestry in the Textiles Collection, a complex of many threads. In that first fiscal year the Smithsonian bravely opened several new offices to embark on overdue work in various directions. We established an Office of Education and Training, then an Office of International Activities which William W. Warner directed with peripatetic éclat. It organized the first archaeological dig abroad with State Department cooperation. It helped UNESCO rescue Abu Simbel and the monuments of Nubia from the rising waters of Lake Nasser. It facilitated American scientists of all disciplines and affiliations to work abroad by making local currencies available to them as “counterpart funds.” If it appeared that the Institution was embarked on an “outreach” campaign that year, the stage was being set for other drama through such activities as the first conversations with Joseph H. Hirshhorn.

Studying what had come before offered a splendid springboard, for a review of Smithson’s legacy revealed that 1965 was the bicentennial of the founder’s birth. What better occasion to win academe and public alike to our renascent cause and, *mirabile dictu*, rededicate his namesake Institution. The convocation celebrating James Smithson’s 200th birthday brought the pomp and panoply of a full-dress academic procession to the Mall as we conferred the first Smithson Medal on the Royal Society (of which our founder had been a member at age twenty-four). Some five hundred learned societies around the globe sent their representatives in recognition of the Smithsonian’s contributions to learning since 1846. These harkened back to the free exchange of scientific information and research under the first Secretary.



The academic procession from the Smithsonian Castle to the National Museum of Natural History for the formal opening of the Institution's eighth international symposium, "The Road after 1984: High Technology and Human Freedom," on December 8, 1983.

Fiscal year 1965 also saw the creation of the Resident Associate Program, which proved the Biblical lesson of manifold returns: "Give, and it shall be given unto you." Some subscribers thought the program an act of overt generosity on our part, yet it has earned more than it cost many times over. For one thing, it provided a new way for the Institution to do its important work by offering a new vehicle to diffuse knowledge. For another, it brought into the Smithsonian fold a whole new constituency of friends who would be both self-motivated seekers and our ambassadors. This and subsequent Associates programs brought us close to people and them to us. Resembling programs suggested by Secretary Walcott in 1926, they provided educational and recreation opportunities for people who soon supported the Institution with their gifts and good offices.

On the several scientific fronts: Donald Davis proved through the intriguing agency of moths that yucca and agave plants belong to one genus; through faunal evidence J. F. Gates Clarke demonstrated the then surprising hypothesis of continental drift: that Australia, New Zealand, Rapa Island, and South Africa were once joined. Pioneering volunteer observers joined the Prairie Network to track satellites and meteorites across the night skies; the new publications series *Contributions to Anthropology* was launched; we were given an estuarine tract, the Chesapeake Bay Center for Environmental Studies, now a 2500-acre natural workshop and laboratory; the Flight Cage at the National Zoo opened to the delight of visitors and avian occupants alike.

On strategic fronts, the Regents authorized the start of substantive conversations both with Mr. Hirshhorn and with the trustees of New York's beleaguered art museum at the Cooper Union Institute. SITES, the traveling exhibition service, was reactivated. Mary Livingston Ripley helped organize the soon highly effective Women's Committee, while her husband contemplated the sorry tradition that the Secretary was the only Smithsonian figure listed in the social directory, the Green Book. This was a fact that had nothing to do with any scholarly issue or museum policy; but it had everything to do with Washington's infrastructure, with money and access to eleemosynary support anywhere. As surely as an expedition in Nepal needs caches of food, success in any Washington venture requires access to the seats of influence, a fact of life that may have been neglected by previous Secretaries who did not believe their duties included fundraising. Meanwhile, mindful of Joseph Henry's belief that the Mall might

be made one of the most delightful places in the United States, we began turning this greensward into a park for people, a lawn of living celebrations, as trumpeters mounted the Castle's North Portico and the National Symphony performed on the terrace of the new Museum of History and Technology.

In the banner year of 1966, beetles arrived from the tomb of Tutankhamen; the Arts and Industries Building was renovated; Nathan Reingold began editing *The Papers of Joseph Henry*, a project jointly sponsored by the Smithsonian, the American Philosophical Society, and the National Academy of Sciences; the Division of Performing Arts made its debut; the Smithsonian Institution Press began publishing, with some trade books in addition to a scholarly and scientific list.

Above all, President Johnson proved himself a friend of art and of the Smithsonian. First, he was instrumental in saving the original Corcoran art gallery building from demolition. This architectural gem next to Blair House was transferred to the Smithsonian for restoration as the Renwick Gallery. Next, the President and Mrs. Johnson personally interceded in the cause of the Joseph H. Hirshhorn Museum and Sculpture Garden. I had solicited the Johnsons' help in this matter, believing that they appreciated the ineffable value of great art to the American people in general and Washington in particular. It seemed unfortunate that Washington might lose this opportunity because of the presumption that nothing more on the Mall could have a donor's name on it. A truly passionate collector of modern art, Hirshhorn owned nearly seven thousand objects then valued at over \$24 million, and he wanted to give the lot—within an edifice he would help build—to America. There was stiff competition between cities, nay among nations, to possess this collection, but the President's personal interest and intervention won it for us. The gift of this treasury was one of three signal art events in Washington's history, in the grand tradition of Charles Lang Freer's contribution of his unrivaled orientalia and Andrew W. Mellon's donation of the National Gallery of Art.

Finally, 1966 marked the first of an annual miniconvocation of scholars, academic specialists, artists, musicians, critics, and scientists in cognate fields assembled as the Smithsonian Council. The purpose of the three-day meetings of this council is mutual exchange: the Council familiarizes itself with the scholarly diversity of our Institution, while our colleagues are exposed to kindred souls in all fields. Each group comes to understand the other and in the telling we are able to disseminate our wares to the intellec-



*Above:* Abram Lerner (left), then director of the Hirshhorn Museum and Sculpture Garden, with Helmut Schmidt, former Chancellor of West Germany, studying a work in the exhibition *German Expressionist Sculpture*, April 2, 1984. *Below:* Shown at the twentieth anniversary celebration of the Organization of African Unity at the National Museum of African Art, December 20, 1983, are (left to right) Edward J. Perkins, Director, Office of West African Affairs, U.S. State Department; Henri A. Turpin, Counselor, Senegal; Secretary Ripley; Chester A. Crocker, Assistant Secretary of State, Bureau of African Affairs; and Sylvia Williams, Director, National Museum of African Art. Photograph by Jeff Ploskonka





tual world about. The experience has not always "worked," but the annual meetings serve as a fascinating inward look and outward exposure for both sides.

The following year marked the bestowal upon the Smithsonian of the Lilly Collection of rare coins. Work began on the revised multivolume *Handbook of North American Indians* and the Urgent Anthropology Program. The year 1967 also brought new vitality to "people programs." Alarmed by the consensus among authorities at an Aspen conference that museums belonged to gentry, Charles Blitzer and I countered with a novel proposal: If less elegant people tacitly proved the brahmins correct by staying away from marble halls on the Mall, the Loop, and Fifth Avenue, then let us build smaller museums in lesser neighborhoods. In Washington's inner city we found an abandoned movie theater, a willing community, and an administrator who was a local resident and knew the area and its people well. Then John R. Kinard opened the Anacostia Neighborhood Museum, and its doors are still open, on the avenue later named for the Rev. Dr. Martin Luther King, Jr.

The Department of Transportation was also born in 1967, and the Smithsonian took due notice. A vehicular extravaganza on the Mall (which already boasted the roundabout jitney of the carousel) featured a rally of antique cars, an exhibit of vehicles of the future, and even a demonstration of real levitation as a "test pilot" bounded around wearing a rocket belt. But in the most splendid event on our lawns that year, the first Festival of American Folklife, under the far-seeing direction of Ralph Rinzler, our expert in ethnicity and folkcrafts, celebrated the manifold creativity of the American people.

In 1968, the Office of Museum Programs opened and, reflecting the spirit of the National Museum Act of 1966, provided an array of advisory and assistance programs to kindred institutions throughout the land. It also would serve as our conduit of news about goings on elsewhere in America and abroad. New York's Cooper Union Museum was reborn as a Smithsonian bureau, the Cooper-Hewitt Museum of Decorative Arts and Design, significantly our only museum outside Washington, D.C.

In Washington the fabled Patent Office Building became another of the Smithsonian's many mansions, this one to house both the National Portrait Gallery and the National Collection of Fine Arts. Here nomenclature presented conundrums fit for a taxonomist. Since 1910 the Smithsonian had a "National Gallery of Art" of sorts, but Andrew Mellon had appropriated the generic name with

his famous gift in 1938. The Smithsonian's art holdings then acquired the title of National Collection of Fine Arts, a rather grandiose handle for the eclectic, interesting, yet fragmentary group of *objets* that dustily reposed in Hall 10 of the Natural History Museum. It was this material that became the nucleus of the Patent Office's north side, which was later renamed most descriptively the National Museum of American Art.

As for the National Portrait Gallery, this was no mere copy of a British model, but thanks to its first two directors, Charles Nagel and Marvin Sadik, a uniquely original museum: a source of visual information about famous Americans.

In 1968, the Woodrow Wilson International Center for Scholars was chartered by Congress as a Smithsonian bureau (under an independent board of trustees, like the Kennedy Center and the National Gallery of Art). In the same year the Smithsonian Astrophysical Observatory, a joint venture with Harvard University, opened its largest field facility, later named the Fred Lawrence Whipple Observatory, atop Mount Hopkins in Arizona. As the decade drew to a close, we looked farther and farther ahead. Ground was broken for the Hirshhorn Museum, and plans were laid for a national magazine to report on everything that interested the Smithsonian "or should interest it," as founding editor Edward K. Thompson put it.

As the new decade began, we received approval to build the National Air and Space Museum by a stroke of fiduciary genius that might stand every government agency in good stead today. Congress had authorized the expenditure of some \$40 million for the new museum, and we had commissioned a fine design. But with costs skyrocketing, the construction bids were coming in at \$65 million and up. Representative Michael Kirwan, a former Regent and faithful friend on Capitol Hill, warned of disaster if we requested more money. Instead, we informed our architect, Gyo Obata, of our dilemma, told him that there was no alternative to a streamlined, stripped-down design. At the same time, we persuaded a new President, Mr. Nixon, the Budget Office, and Congress that if there was to be a National Air and Space Museum in Washington on July 4, 1976, we must act quickly and push our design and budget through. For this we summoned a blue ribbon team: two Regents, William Burden and James Webb, and the charismatic figure of Michael Collins fresh from the first moon voyage. This astronaut pleaded our cause as the Director-elect of the world's most popular museum of the future. Meanwhile, the



An aerial view of the Smithsonian Astrophysical Observatory's primary site for ground-based astronomy, the Fred Lawrence Whipple Observatory on Mt. Hopkins, Arizona, looking north toward Tucson. Several instruments, including a 10-meter-diameter gamma-ray collector and 1.5-meter and 61-centimeter optical reflectors (at lower left), and support and maintenance facilities are located on a mile-long ridge at the 7,600-foot level. The Multiple Mirror Telescope, a joint facility with the University of Arizona, is located on the 8,500-foot summit.

Natural History Museum purchased a device of then novel design and priceless worth for its investigations of previously unperceivable minutiae, our first scanning electron microscope. The Institution also abetted the exploration of ephemera by supporting a new branch in Cambridge, Massachusetts, the Center for Short-Lived Phenomena.

The troubled 1970s saw new and diverse activity on and around the Mall. For one thing, the Kennedy Center opened. For another, citizens returned en masse to Washington to protest the tragic war in Vietnam. Here we were able to serve in a manner unexpected for repositories of fossils and art. When tear gas lacrimated the city, more than 80,000 people found fresh air in the environmentally contained Museum of History and Technology.

In another sort of departure from inhumane policies, we annulled the rule requiring our researchers to present their papers for pre-publication review. And under the aegis of Charles Blitzer and David Challinor, the tasks of heading scholarly and scientific departments were put on a rotating basis—no more permanent chairmen—in hope of precluding the investiture of a bureaucratic satrapy.

In 1970, the Archives of American Art, an invaluable repository of the personal history and maturation of America's artists, became a Smithsonian bureau. Also, hospitality services for the Institution were expanded through the Visitors Information and Associates' Reception Center, which now directs a corps of volunteers approximately as large as the Smithsonian's staff. VIARC opened in conjunction with the premiere issue of *Smithsonian* magazine, whose subscribers were automatically National Associates. The magazine won Regents' approval just after Earl Warren stepped down as Chief Justice and ex officio Chancellor of the Institution. Although many members of the Smithsonian community opposed our entering the hue-and-cry world of popular journalism (as a few diehards still do), and grumblings about media grants were growing louder in many quarters, our newly appointed Chancellor, Chief Justice Warren Burger, led the Regents in approving the magazine. Within two years, the magazine began showing a profit and has added handsomely to trust fund accounts over the years. It has also won kudos from both media experts and the public, who now subscribe as Associates in numbers exceeding two million.

In July 1970, the Smithsonian was privileged to enter the lime-light on Capitol Hill when Representative Frank Thompson chaired

a committee that reviewed our operations, policies, and finances. While some bureau directors anticipated the hearings with dread, I welcomed this expression of congressional interest in the Smithsonian, the first since 1855. We were fortunate that these overseers corrected an ill-advised plan: the Hirshhorn Museum and Sculpture Garden would not transect the Mall. Beyond that, the committee concluded that "the Smithsonian's value is basic and should be continued. Its work and research in science, education, history and the arts and, of course, its many museums far overshadow whatever criticisms . . . have been made." Further afield, the Fort Pierce Bureau in Link Port, Florida, began operations as a Smithsonian marine station.

In 1972, President Nixon returned from his historic visit to the world's most populous nation with a gift of two giant pandas from the people of China. They were ensconced at the National Zoo, which also prepared to embark on director Theodore H. Reed's masterful master plan. The Renwick Gallery opened at last, and at Treasury Secretary John B. Connally's invitation, the Group of Ten international finance ministers convened in the Castle. (It is alleged that during that meeting the dollar floated as a result of two of the finance ministers' getting stuck together in a balky elevator.)

The following year, the Regents approved the introduction in Congress of legislation authorizing planning for a Museum Support Center on federally owned land in Silver Hill, Maryland. Having outgrown our buildings on the Mall and elsewhere, the several museums could now responsibly plan for the curation, preservation, and storage of priceless collections in what would be a state-of-the-art facility. But as we focused on new beginnings, two of the three former Secretaries died in 1973, and thus ended an actuarial miracle: until the demise of Leonard Carmichael and of Charles Greely Abbot, half of the eight men who had chaired this Institution since 1846 were still alive. (The first four died in office.)

In the Mall's landmark event for 1974, the Hirshhorn Museum and Sculpture Garden opened at last, and to lasting acclaim as a repository of modern art. The following year the General Services Administration conferred on us an erstwhile experimental farm and army remount station in Front Royal, Virginia, which the Zoo put to use as a center for breeding, research, and conservation of rare animals. But 1975 was almost as notable for what did not occur. In three signal instances the Smithsonian proved that it no



President Reagan meets Jayathu, an eighteen-month-old Asiatic elephant, a gift from J. R. Jayewardene of Sri Lanka, at the White House, June 18, 1984. Jayathu was accompanied by keeper Jim Jones of the National Zoological Park and her Sri Lanka keeper, S. S. M. Seelaratna.

longer accepts everything that's offered; the old image of "the nation's attic," repository of things wanted nowhere else, may be shelved, perhaps in someone else's garage. We declined acquisition of the San Francisco Mint, of the Saint Louis Post Office, and of the liner SS *United States*. We have also raised a few eyebrows by turning down Howard Hughes's plane, the *Spruce Goose*.

The nation's Bicentennial witnessed celebrations almost everywhere, but the year 1976 was an especial one on the Mall where our museums mounted twenty-three special exhibitions, a grand pastiche collectively called "The American Experience." At the suggestion of Frank Taylor, director general of the U.S. National Museum, this included the reopening of the Arts and Industries Building with a recreation of the 1876 Centennial Exposition at Philadelphia. In the Natural History Building the West Court had been developed to house a cafeteria, gift shop, and Naturalist Center. In New York, the refurbished and reorganized Cooper-Hewitt Museum under the consummate direction of Lisa Taylor opened in Andrew Carnegie's mansion on Fifth Avenue. But the signal premiere was on the Mall's south side: the July first opening of the National Air and Space Museum, which set some kind of record by welcoming two million visitors in the first forty-nine days.

In the following years, the Smithsonian Institution Press added a new imprint, now known as Smithsonian Books, another publishing venture of merit for the public and revenue for the Institution. The Regents opened a special fund for Institution acquisitions, special research, and education. The Office of Biological Conservation became our coordinator and watchdog in the crucial realm of conservation activities. The Assistant Secretary for Public Service, Julian Euell, established the Office of Telecommunications under the able direction of Chic Cherkezian, thereby adding to the Institution's outreach efforts the powerful aid of electronic media.

The decade's last year saw several major new projects. For one, the fifteen-year-old independent Museum of African Art, so far as we know the only American museum of its ken, became a new Smithsonian bureau. In the Southwest, the Multiple Mirror Telescope, a joint venture with the University of Arizona at Mount Hopkins, began scanning the skies with uniquely new acuity. In the Canal Zone, the Smithsonian Tropical Research Institute established a 13,000-acre biological preserve, the Barro Colorado Nature Monument. At home, the Regents established a new fellowship program for attracting eminent scholars and scientists in

residence.

In 1980, Walter Adey's living coral reef—the first ever maintained apart from the sea—was put on public display at the National Museum of Natural History. The National Portrait Gallery acquired Gilbert Stuart's most famous portraits, perhaps the truest likenesses of George and Martha Washington, in a special partnership with the Museum of Fine Arts, Boston. The following year, the specially designed Thomas M. Evans Gallery opened at Natural History as a showcase for traveling exhibitions. This was soon followed by the establishment of the James E. Webb Fellowships to promote excellence in the management of cultural and scientific nonprofit institutions, and by two projects of first-magnitude importance to museology. First, in 1983 the Museum Support Center was finally opened at Silver Hill, the world's model facility, we hope, for the maintenance of museum collections. Second, the first stage of an institution-wide inventory was completed: the painstaking task of identifying and counting all of the Smithsonian's 100,000,000 artifacts and specimens. The results of this "great counting" will include cybernetic access to data describing every single one of our possessions.

The last years of my administration have seen the National Air and Space Museum begin the project of placing its collection of over one million photographs onto laser videodisc. Also during this period, several Smithsonian museums jointly compiled a polymath exhibition, *Treasures of the Smithsonian Institution*, for display at the celebrated Edinburgh Arts Festival. It was August 1984, two hundred years to the month from James Smithson's introduction to the Highlands and the Age of Enlightenment.

Finally in 1983, there was the planning, authorization, and early-stage construction of the Smithsonian Center for African, Near Eastern, and Asian Cultures. This largely underground facility, initially endowed by Arthur M. Sackler to contain his priceless collection of Asian masterworks, will connect with the Freer, and will comprise also the fabled collections of the Museum of African Art. Like the youngest child of a parent, this new museum complex—the Quadrangle—must always have a special place in my heart.

The money for it has been raised and committed; funds for the structure's programs have already been pledged by a goodly number of the governments and individuals across the vast arc of mostly new nations of that half of the world represented in the Center's title. My chief regret at relinquishing the torch now is leaving before the Quadrangle's completion. But like the Smith-





Brian Fisher, a thirteen-year-old junior high school student from Chicago, became the 75 millionth visitor to the National Air and Space Museum on May 24, 1984. He is greeted by museum director Walter Boyne. In the background, three medieval-costumed trumpeters herald the occasion.

sonian itself, this building may never be finished save in a physical sense. Its purpose, its inner life as manifested in scholarly programs and public appreciation of exhibits, will depend on those who follow me and my generation of curators, scientists, historians, and delineators of knowledge.

The new Center for African, Near Eastern, and Asian Cultures rises steadily (as I write) in its vast pit, looking in embryo like the beginnings of a coral reef in a tropical lagoon. The shelflike ledges appear in place and will superimpose themselves layer by layer. A delicate miniature forest of lacy pillars spreads up from the base like the skeletal frame of sea fans or the bare branches of gorgonians thrusting toward the light.

Soon this solid foundation will all be filled in and a verdant green carpet will spread out like the top of the reef at low tide. Look for water splashing here and there, with two projecting galleries above, beautiful stranded granite boulders rich in color, set amongst the vegetation, a dream come true.

Perhaps in years to come a similar Center for the New World can arise in the quadrilateral space east of the Air and Space Museum which was deeded to us some time ago by the Congress. The statute specified that plans for any structure on that last Mall building site must be approved in advance by Congress. (No one need be taken unawares by some vast teeth of Cadmus springing up overnight to obstruct the western vista from the Capitol towards the panorama of Mall and monuments.) This was a wise decision, one in which the Smithsonian concurred, testifying that we had no wish to encumber space with sheer manmade mass to obliterate openness, an increasingly precious commodity in our city.

If the Quadrangle becomes the success we anticipate—novel in theme as well as structure—what a fine example it can serve for the future in our world. It will serve as a model for still another vast cultural history to be told and pondered: the sweep of two continents from the Bering Sea to Cape Horn trodden by the streams of emerging civilizations over the course of some 30,000 years. Cultures have emerged in the flowing over these new worlds, from north to south, from west to east. No similar event can quite so clearly be defined on the rest of the planet; no effort has so far been attempted to describe in time and sequence this all-encompassing tidal flow which continues even today in a way whose history is only becoming known and whose future like the winds of time cannot be discerned.

For the present our new Center for African, Middle Eastern, and

Asian Cultures is an experiment for the Institution, delving into cultural history in a new mode. I am intrigued to speculate on the pedestrian traffic this Center will bring, whether it will attract new thoughts, new ways of understanding half of the world's population. As the winds change so may our perceptions also of our fellow humans. Across the Mall, even on calm days, gusts and eddies of breeze remind one that this is a vast, still, quite open space. The wind, when it comes unpredictably, blows hither and yon. Sometimes the flags round the Washington Monument stand straight out, their whipping sound rising to a continuous muted roar like rapids in a stream in spate.

Pandit Nehru once said, unforgettably, "Strange winds are blowing across the face of Asia. We know not whence they come nor where they go." His prescient words evoked a thrilling current within me like some music. Walking across the Mall one senses such electricity in the air, and visions of a kind, whether past or future, we cannot tell.

Beneath the ambient noises of everyday, the ephemera of today's news or tomorrow's politics, there is a steady mass of public opinions and notions, indeed convictions, which like the breezes are independent of the noisemakers. In the turmoil and drama of communication most people do not listen, and do not hear or sense the presence of these notions. No opinion poll seems to be effective, either. What then could we hear if we cared enough?

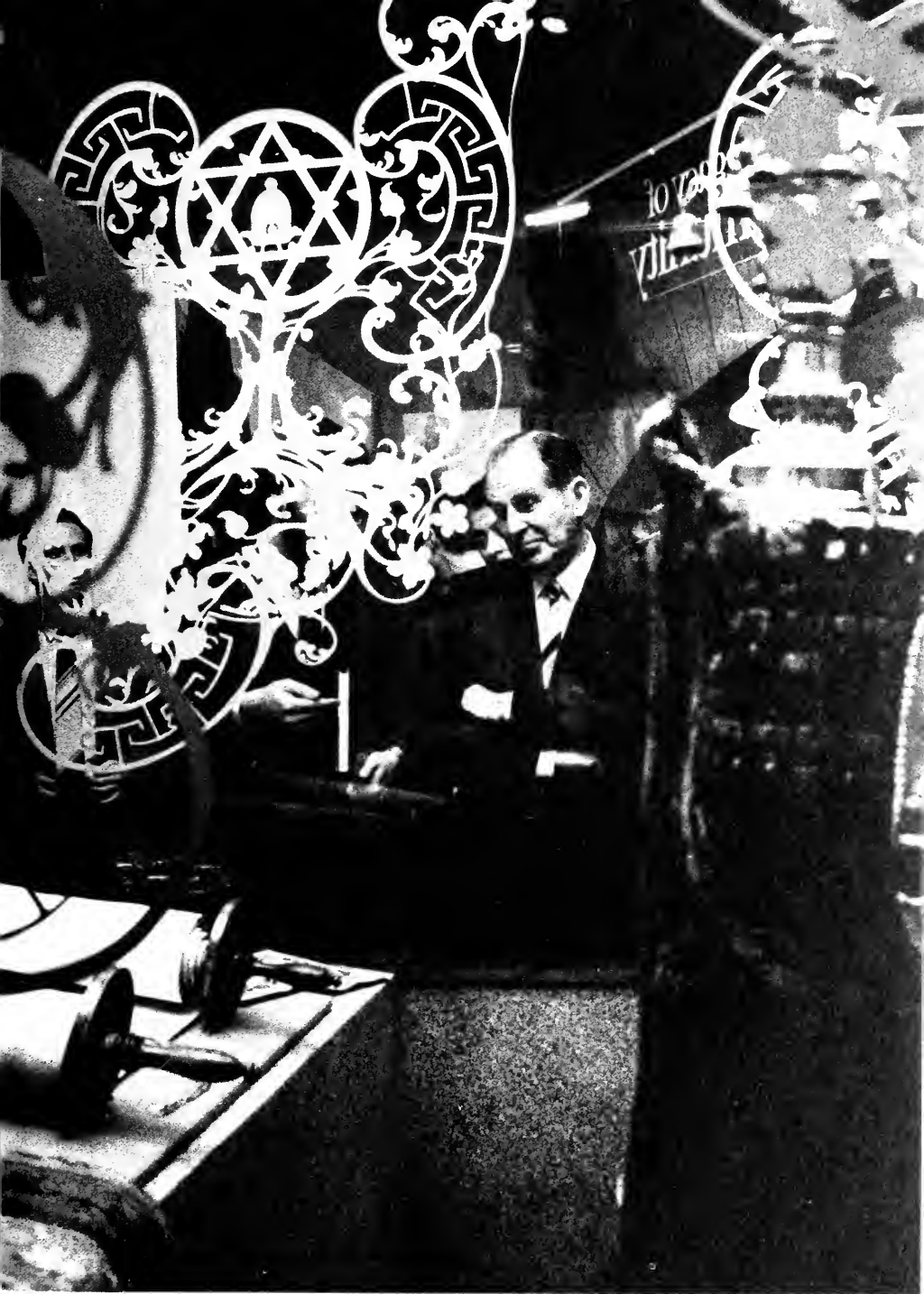
It seems that Eisenhower's farewell words were prescient also, often quoted but, like Cassandra's, unheeded. "Beware the military-industrial complex." It is not so much the question of the triumphs of technology. One cannot feel really alarmed by our nation's hegemony of military-industrial development. It moves anyway, ponderously, imperceptibly even, irrespective of the overt shouting and tumult.

What the past years have wrought is a state of mind that seems more pervasive and indeed alarming than the surface evidence. Faith is at a nadir today. Religion has succumbed to niggling complaints about other faiths, and to a fratricidal theocracy, unknown since the Middle Ages. We may decry the rise of militant Islamic sectarianism, but it is being mirrored all across the world in varieties of fanaticism unparalleled in recent time. In the name of religion, pseudo-religion, or neo-religion, technology aids us today in constant acts of terror, blasphemy, and horror, enough to tip the balance so as to defeat faith itself. We have turned inward, towards inner self and thus selfishness with no restraint. Ambition



Among the major works of art received by the Smithsonian this fiscal year were (*above*) Edgar Degas' portrait of Mary Cassatt, purchased as a gift to the National Portrait Gallery from the Morris and Gwendolyn Cafritz Foundation and the Regents' Major Acquisition Fund, and (*below*) Edward Hopper's 1950 oil on canvas, *Cape Cod Morning*, one of the 169 paintings, sculptures, and drawings given to the National Museum of American Art by the Sara Roby Foundation.





A record-breaking 105,000 visitors viewed the Smithsonian Institution Traveling Exhibition Service's *The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections* during its seven-week showing at the National Museum of Natural History. Among the many dignitaries who saw the exhibition was Chaim Herzog, president of Israel.

as of now is for oneself alone in every sense or sensibility. Mammon is worshiped, a companion to envy and greed in the denial of faith.

In this paroxysm of shock, there is a parallel settling down as of an outward buffer towards a numbing new conservatism, a search for conformity, the building of an overweening consensus. If there is in truth only a consensus, then bureaucracy administered by computer will be the answer to everything. There will be a mood of pseudocomplacency covering an essential malaise of the spirit in what may be observed. If possible, let it be routed out if we are to succeed in the restoration of our real faith. The current state is a presentiment of a failure in our culture. We must assume that the ideals embodied in our history are capable of a just and noble restoration, and perhaps this Institution is the one to be the bellwether. Let us then summon those strange winds to our cause and make the view of the Mall one of hope, of keening winds blowing our flags straight and whipping shrill.

#### STAFF CHANGES

The Secretary's Executive Committee was diminished by the loss of three members in the last year. Paul Perrot, Assistant Secretary for Museum Programs since 1972, became director of the Virginia Museum of Fine Arts. Chris Hohenlohe, my erstwhile executive assistant and, since 1979, the Institution's valued Treasurer, left in November to pursue private financial enterprises. (Ann Leven, formerly of the Metropolitan Museum of Art and the Chase Manhattan Bank, now serves as Chris's successor.) Regrettably, Larry Taylor, Coordinator of Public Information, retired.

Al Lerner has retired as founding director of the Hirshhorn Museum and Sculpture Garden. He has been succeeded by James Demetrian, who came from the Des Moines Art Center. Other new Smithsonian executives include Conservation Analytical Laboratory director Lambertus van Zelst; Milo C. Beach, formerly of Williams College, who will head the Sackler Gallery; and William Moss, who left the John F. Kennedy Library to direct the Smithsonian Archives.

Within the Institution, Michael Robinson moved from the Smithsonian Tropical Research Institute to succeed Ted Reed as director of the National Zoological Park. Bill Klein, former director of the Radiation Biology Laboratory, became director of the Environ-

mental Research Center, and senior folklorist Peter Seitel was promoted to director of the Office of Folklife Programs.

To these and many other members of our dedicated staff, we owe a great debt of gratitude. As I have said before, the Smithsonian is a community of talented and interested people on whom rests the Institution's vitality and greatness. I take pride in having been associated with them all.

## The Board of Regents

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The first meeting of the Board of Regents was held on January 23, 1984. After the Chancellor welcomed the new Regent, Mr. Samuel Johnson, the Executive Committee reported on its January 4 meeting at which the Acting Treasurer, Mr. Jameson, described the size, purposes, and procedures of the Institution's current fund investments. The Audit and Review Committee also reported on its meeting of October 18, 1983, in which the members discussed the status of the General Post Office building and collections management policies, and conducted overviews of Smithsonian radio programs and the Smithsonian Institution Traveling Exhibition Service. The Personnel Committee reported that it had found no conflict of interest whatsoever in the financial interests statements of the executive staff.

Mr. Jameson gave a final report on the fiscal year 1983 trust and appropriated funds, discussed the status of fiscal year 1984 funds, and noted the allowance from the Office of Management and Budget for fiscal year 1985 appropriated funds. The Investment Policy Committee had met on November 17, 1983, to review investment performance and strategies of the three investment managers and reported that the annualized returns continued to exceed market averages. To diversify and participate in an additional sector of the market, the committee recommended and the Regents agreed to invest \$5 million of trust funds in a mutual fund specializing in science and technology issues. The committee also proposed and the Regents approved establishing a more liberal total return income payout rate to be applied to new endowment funds which the Secretary will determine to have high current income needs. Mr. Jameson presented a revised and updated *Five-Year Prospectus, Fiscal Years 1985-89*, which was approved by the Regents.

Secretary Ripley reported on the construction of the Quadrangle, on the status of fundraising, and, with the Assistant Secretary for Public Service, Mr. Rinzler, on the preliminary planning for the International Center. In other proposed actions, the Regents recognized Abram Lerner's accomplishments as founding director of the Hirshhorn Museum and Sculpture Garden and named the balcony



room in his honor, approved in principle the expansion plans for the Cooper-Hewitt Museum, endorsed the preliminary planning for a Smithsonian presence at the 1984 Edinburgh Festival, authorized the Secretary to enter into agreements with the State of Maryland to designate the Smithsonian Environmental Research Center as a National Estuarine Sanctuary, and requested that the congressional members of the Board of Regents introduce and support legislation authorizing the nonreimbursable transfer of the General Post Office building (along with appropriations for its repair and renovation) and other legislation to authorize planning and construction of science facilities for the National Air and Space Museum, the Smithsonian Environmental Research Center, the Smithsonian Tropical Research Institute, and the Whipple Observatory. They also voted to appoint Messrs. Michael Sonnenreich, John Al Friede, and Gustave Schindler and Mrs. Milton F. Rosenthal to terms on the Commission of the National Museum of African Art.

After Secretary Ripley discussed a variety of status reports, the chairman of the Regents Search Committee, Dr. Bowen, described the process of searching for Mr. Ripley's successor, adding that in all of this committee's discussions and voluminous correspondence a recurring theme was an appreciation of the Secretary for his exceptional leadership of the Smithsonian over two decades. In executive session Dr. Bowen presented the Search Committee's recommendation and the Regents elected Robert McCormick Adams, Provost of the University of Chicago, as the ninth Secretary. Following the meeting, Messrs. Bowen, Ripley, and Adams met briefly with the heads of Smithsonian bureaus and offices in the Great Hall and then, along with Mr. Humelsine, held a press conference in the Under Secretary's office.

The Regents' Dinner was held on the preceding evening, January 22, in the National Museum of American History. After dinner Mr. Ripley greeted the guests and awarded to Paul N. Perrot, Assistant Secretary for Museum Programs, the Secretary's Gold Medal for Exceptional Service.

The Chancellor called to order the second meeting of the year in the Regents' Room at 9:30 A.M., May 7, 1984. The Executive Committee reported on its meeting of April 11 in which this committee, acting on behalf of the Regents, requested the congressional Regents to promote legislation effecting the reappointment of Regents Armstrong and Higginbotham for the statutory terms of six years. The Audit and Review Committee discussed its meet-

ing of March 8 in which they had an overview of the Archives of American Art, discussed Coopers & Lybrand's consolidated audit of trust and federal funds for fiscal year 1983 and Report to Management, considered factors in the Institution's construction priorities, and received reports on the Office of Audits' most significant recommendations in 1983 and on improvements in Smithsonian security programs. The Investment Policy Committee reported on its review of the investment managers' performance and the Regents, acting on this committee's recommendations, approved fiscal year 1985 total return payout rates for the endowment funds.

Mr. Jameson presented a detailed report on the status of current year funds and the processes of budgeting for fiscal years 1985 and 1986. After considerable discussion, the Regents voted to authorize the Secretary to negotiate contracts for the financing, construction, and operation of a new restaurant facility in the National Air and Space Museum and for the financing, appropriate renovations, and operation of food services in other Smithsonian museums; to create a Special Exhibition Fund for underwriting carefully selected, major, temporary exhibitions; to receive the Annual Report, *Smithsonian Year 1983*; to appoint Barbara Tuchman, Frank Stanton, and Robert McNeil to terms on the Commission of the National Portrait Gallery, to appoint Helen Neufeld and Colbert King to terms on the Commission of the National Museum of African Art, and to appoint Donald Anderson, Walter Hancock, Bartlett H. Hayes, Jr., Eloise Spaeth, Charles Parkhurst, Gene B. Davis, and Margaret Dodge Garrett to terms on the Commission of the National Museum of American Art; and to endorse the Smithsonian's participation in the 1984 Edinburgh Festival and authorize the Secretary to draw upon unrestricted trust funds for that purpose with the approval of the Executive Committee.

Mr. Ripley reported on progress in the construction of the Quadrangle, noted that prospects were excellent for meeting or exceeding the original goal of raising \$37.5 million in nonappropriated funds, and described the closing stages of the fundraising campaign. He also presented a number of status reports on Smithsonian programs and activities.

On September 24, 1983, the National Board of Smithsonian Associates unanimously recommended that two distinguished benefactors of the Institution, Dr. Arthur M. Sackler and Mrs. Enid A. Haupt, be the first inductees into the Order of James Smithson. In recognition of their extraordinary contributions to the Smith-

sonian, the Board of Regents heartily endorsed their induction into the Order at a suitable occasion to be arranged by the Secretary.

On Sunday evening, May 6, President and Mrs. Reagan were hosts to the Regents, members of the Smithsonian Establishment, and Secretary and Mrs. Ripley at a dinner in the Blue Room of the White House. During the proceedings the President raised a toast to Secretary and Mrs. Ripley and Mr. Ripley returned the honor.

The Regents' third meeting of the year was called to order by the Chancellor on September 17, 1984. The Executive Committee reported on its meeting of August 22 in which it reviewed and approved the Regents' agenda. Mr. Humelsine announced that in a poll through the mail, the Regents voted unanimously to induct Secretary Ripley into the Order of James Smithson and to present to Mrs. Ripley the Joseph Henry Medal. The Audit and Review Committee reported that on May 24, it conducted an overview of the National Zoological Park and of the Institution's product licensing program. In addition the Audit and Review Committee discussed Coopers & Lybrand's plan for their consolidated audit of fiscal year 1984 funds and the Smithsonian's measures toward improved food service operations and facilities. The Investment Policy Committee also reported on the performance of the investment managers as of June 30.

In presenting the Financial Report, Mr. Jameson described the status of current year federal and trust funds as well as the pending action of the Congress on the fiscal year 1985 appropriations. After discussion the Regents approved the fiscal year 1985 budget for nonappropriated funds and the submission of the fiscal year 1986 budget request to the Office of Management and Budget. The Regents also gave preliminary thought to a draft of the *Five-Year Prospectus, Fiscal Years 1986-1990*, which they will consider for approval at their next meeting.

Among other actions the Regents endorsed the Smithsonian's participation in the Festival of India and authorized some contingent expenses; approved discussions leading to a donation of collections from the U.S. Patent Model Foundation; authorized negotiations with the Tupper family for their support of construction of a laboratory and conference facility, to be named for Earl S. Tupper, at the Smithsonian Tropical Research Institute; voted to induct Mrs. Sara Roby into the Order of James Smithson in recognition of her generous contribution of her fine collection of twen-

tieth-century realist masters to the National Museum of American Art; and discussed the George Eastman House Board of Trustees' suggestion that their photography collections be transferred to the Smithsonian. Secretary Ripley presented a detailed report on the construction, fundraising, and preliminary programming for the Quadrangle and introduced a variety of other status reports.

In their final act in Secretary Ripley's administration, the Regents adopted the following resolution and ordered it to be laid upon the record:

### RESOLUTION

Whereas S. Dillon Ripley has served as Secretary of the Smithsonian Institution with great distinction for more than two decades and has overseen its extraordinary development to the benefit of the American people and the citizens of the world;

Whereas Secretary Ripley has opened the halls of the Smithsonian for record-setting numbers of citizens to enjoy through a vast array of stimulating exhibitions in the National Museums, through a greatly expanded traveling exhibition service, and through both the printed and electronic media;

Whereas Secretary Ripley has added immeasurably to the Institution's international stature in museum techniques for exhibition and conservation, in studies of the physical and natural sciences, history and art, and therefore in fostering increased intercultural and international understanding; and

Whereas Secretary Ripley has continued to pursue significant ornithological and ecological research enhancing the Smithsonian's leadership in the conservation of nature:

Now, therefore, be it

*Resolved by the Board of Regents of the Smithsonian Institution,*  
That S. Dillon Ripley is named *Secretary Emeritus* so that he may continue to be of service to the Board from time to time and *Research Associate* so that he may continue his scholarly investigations to the credit of the Institution, and to that end it is agreed that he shall be provided appropriate staff support and a grant for his research.

Having adjourned their formal meeting, the Regents joined the Regents Emeriti, invited guests, and the staff and volunteers of the Institution for a noontime ceremony on the Mall marking the in-

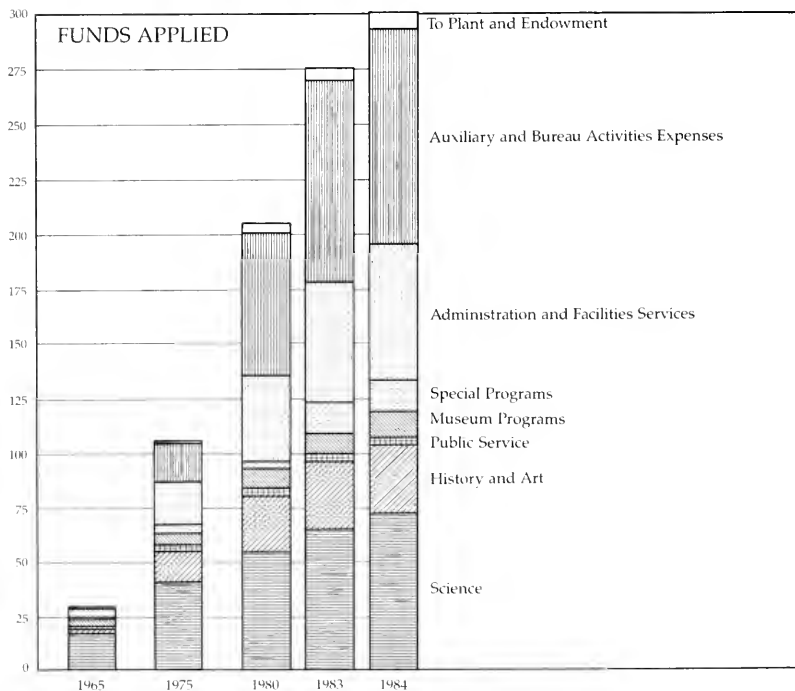
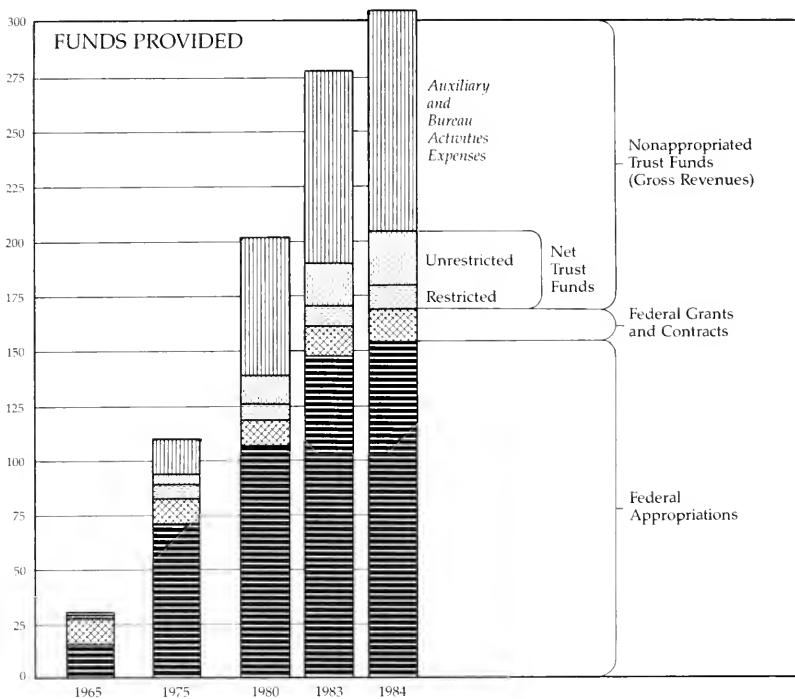
stallation of Mr. Adams as the ninth Secretary. Following a prelude of traditional and patriotic music from the U.S. Navy Ceremonial Band, the Chancellor introduced Mr. Ripley who expressed his gratitude for the support and pleasure he received from the Regents, the National Board of the Smithsonian Associates, the staff and volunteers, and countless others. The Chancellor then presented a traditional brass key to Mr. Adams who delivered a brief address on his view of Smithsonian purposes. There followed a reception and luncheon in the Great Hall and Commons for the Regents, Regents Emeriti, and invited guests.

On Sunday evening, September 16, the Chancellor and the Regents held a formal dinner in the National Air and Space Museum in honor of Secretary and Mrs. Ripley. As voted by the Board of Regents and on their behalf, Mr. Humelsine inducted Mr. Ripley into the Order of James Smithson and Mrs. Armstrong presented the Joseph Henry Medal to Mrs. Ripley. The Vice-President gave a toast to the Ripleys and announced that the Secretary will be receiving the President's Medal of Freedom. Concluding the ceremonies pianist Bruce Steeg and two vocalists presented a selection of musical favorites.

# SMITHSONIAN INSTITUTION OPERATING FUNDS

## Fiscal Years 1965, 1975, 1980, 1983, 1984

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



## FINANCIAL REPORT

ANN R. LEVEN, TREASURER

**SUMMARY:** Fiscal year 1984 marked a year of change at the Smithsonian, most notably the appointment of Robert McC. Adams as the ninth Secretary of the Institution and the retirement of S. Dillon Ripley as the eighth Secretary. Mr. Ripley's extraordinary legacy is nowhere more visible than in the Institution's fiscal report. In fiscal year 1965, Mr. Ripley's first full year as Secretary, the Institution's operating budget was \$30 million. For the year just ended, Mr. Ripley presided over a greatly expanded Institution with a budget tenfold that of fiscal year 1965.

Mr. Ripley's twenty-year tenure, as referenced elsewhere in *Smithsonian Year*, brought new vitality to the Institution, vitality that cannot be measured in dollars. Mr. Ripley acted to shape the form and focus of the Institution. New museums were added, particularly in the arts. Under Dillon Ripley's aegis, the Cooper-Hewitt Museum, the Hirshhorn Museum and Sculpture Garden, the Renwick Gallery, the Anacostia Neighborhood Museum, and the National Museum of African Art joined the Smithsonian family. The National Museum of American Art and the Portrait Gallery found new homes in the Old Patent Office Building, lovingly restored under Mr. Ripley's guidance. The National Air and Space Museum opened its new building in July 1976. In 1983 construction began on the Quadrangle, Mr. Ripley's last and most expansive project on the Mall.

Public accessibility to American culture and diversity was further enhanced by a variety of outreach activities, most notably *Smithsonian* magazine, which stands as the preeminent publica-

tion of its kind in the world today. Other programmatic triumphs include the annual Folklife Festival, the Archives of American Art, and the extraordinarily active Associate programs. Were all this not sufficient, research efforts, assistance to other museums, and innovative exhibits enhanced the lay public's and the scholars' perspectives during Mr. Ripley's tenure.

The accomplishments of the Ripley years have been supported in substantial proportions by federal appropriations. In recent years, nonappropriated trust funds have also contributed an increasing share. In 1964 there were some 40 private donors to the Institution; in fiscal year 1984 there were more than 30,000. The unprecedented sum of \$37.5 million in private funds was raised, principally by Mr. Ripley, for the Quadrangle to match monies pledged by Congress for the project.

Fiscal year 1984 marks the culmination of the growth, excitement, and achievement of the Ripley years. The following pages detail the Institution's finances. It is clearly apparent that the Smithsonian is a far more complex organization than it was in 1964. Four Treasurers served Mr. Ripley: Edgar L. Roy and Otis O. Martin in the early years; T. Ames Wheeler from 1968 to 1979, and Christian C. Hohenlohe from 1979 to 1983. John F. Jameson, Assistant Secretary for Administration, served as Acting Treasurer from November 1983 through July 1984. Ann R. Leven, former Treasurer of the Metropolitan Museum of Art, joined the Institution in August 1984.

As the Smithsonian begins the Adams years, the Institution looks forward to a continuation of the broad-based support of both the Administration and the Congress and of the public at large for further enhancement of its research, exhibition, education, and collection management endeavors.

### *Operating Funds—Sources and Application*

As may be seen from Table 1, the gross amount available for operations in fiscal year 1984 was \$304,350,000, an increase of 9 percent when compared to the previous year's total of \$277,974,000. Federal appropriations contributed 51 percent of the fiscal year 1984 revenues, nonappropriated sources accounted for 44 percent, and 5 percent were from federal agency grants and contracts.



After deducting expenses of the nonappropriated auxiliary and bureau activities, net operating income increased by \$18 million over the prior year to \$206,452,000. Federal funds accounted for 76 percent of net revenue, nonappropriated funds contributed 17 percent, a slight increase over fiscal year 1983, with the 7 percent balance from federal grants and contracts. The application of funds by all Smithsonian bureaus is outlined in Table 2, with further supporting detail in other tables.

#### *FEDERAL APPROPRIATION*

Federal appropriations provide the core support for the Institution's continuing programs in research, exhibitions, education, publishing, and collections management, including related administrative and support services. They provide, as well, for the maintenance and protection of the collections and physical plant.

Federal support for the Institution's operating programs totaled \$156,683,000 in fiscal year 1984, an increase of \$9.4 million over fiscal year 1983. Although the majority of this increase—some \$5.4 million—was required to cover inflationary increases in salaries and other expenses, significant new funding of \$4 million was provided for a variety of program activities. Of this increase, \$1.2 million was received for operations and program requirements at the Museum Support Center, which in fiscal year 1984 completed its first full year of operation, and for strengthening the conservation activity at the center. Complementing the growth in construction support for major renovations and repairs (discussed below), funding was received in the operating account for professional architectural and engineering services and for facilities maintenance at two off-mall facilities—the Cooper-Hewitt Museum and the National Zoological Park. Other significant increases were provided for expansion of the Institution's computing capabilities, for enhancing the security of buildings and collections, and for replacing and upgrading scientific research equipment at the Astrophysical Observatory and the Tropical Research Institute.

#### *FEDERAL AGENCY GRANTS AND CONTRACTS*

Support from federal agencies in the form of grants and contracts totaled \$14,878,000 in fiscal year 1984, an increase of 13 percent over the previous year. These funds constitute an important source of research support for the Institution while also benefiting the granting agencies by providing access to Smithsonian expertise and

resources. As in prior years, the Smithsonian worked closely with the National Aeronautics and Space Administration (NASA). As reflected in Table 3, expenditures under NASA grants and contracts totaled approximately \$11.3 million in fiscal year 1984, primarily for research programs at the Astrophysical Observatory. Sponsored research included balloon-borne telescope observations, the study of meteorite samples from the Antarctic, X-ray telescope studies, and the design of hydrogen masers.

Support from other agencies provided an additional \$3.6 million for such varied programs as an ecological study of the Chesapeake Bay Watershed, the 1984 Festival of American Folklife, and a mariculture project to study and develop food sources from the sea.

#### NONAPPROPRIATED TRUST FUNDS

Income from nonappropriated trust fund sources including gifts, grants, endowment and current fund investments, and revenue-producing activities totaled \$132,789,000 in fiscal year 1984. After exclusion of expenses necessary to generate auxiliary and bureau activity revenues, net income available for Institutional programs equaled \$34,891,000, an increase of \$6.7 million or 24 percent, over fiscal year 1983. Of the total net income, \$24.7 million, or 71 percent, was available for unrestricted program use and was distributed as approved by the Board of Regents. The balance of approximately \$10.2 million was restricted, that is, available only for purposes specified by the benefactor.

*Restricted* fund revenues of \$10.2 million were up \$1 million from the previous year. They consisted of \$5.9 million from gifts and grants, \$3.2 million from endowment investment income and interest earned on restricted current fund balances, and \$1.1 million from other sources, primarily fundraising activities at the Archives of American Art and sales desk activities at the Freer Gallery of Art. Restricted endowment investment income served as the major funding source for oceanographic research administered by the National Museum of Natural History; for operations of the Freer Gallery of Art (now included in the Center for Asian Art); and a wide variety of research, exhibition, publication, and educational activities at other Smithsonian bureaus. Major gift support was received during the year for important additions to the collections, including *Portrait of Mary Cassatt* by Edgar Degas and *Callers* by Walter Ufer; for major exhibitions being developed by the National Museum of Natural History and the Smithsonian Institution Trav-

eling Exhibition Service; and for research and archival activities of the Archives of American Art.

*Unrestricted* funds include both those available for general operating purposes and a smaller category of Special Purpose funds that have been internally designated by the Institution. The former and larger category, *Unrestricted General Purpose* funds, is derived primarily from investment income and net revenues of the auxiliary activities. In fiscal year 1984, net general purpose unrestricted funds provided over \$22 million for general Institutional needs, an increase of some \$5.8 million over the previous year. As displayed in Table 5, this improved performance was due to increased income generated by the Institution's working capital pool invested at favorable rates and to the strong performance of the auxiliary activities.

As in past years, the Smithsonian Associate programs contributed handsomely to auxiliary activity revenues, on both a gross and net basis, reflecting the continued popularity of the *Smithsonian* magazine and the generosity of the Contributing Membership. In fiscal year 1984, Contributing Members donated approximately \$2.7 million in unrestricted gift support. Income from the Museum Shops benefited from generally strong sales enhanced by the new shop at the Museum of American History and high visitation to all museums. The Mail Order Program offered new items and an expanded catalog. The Smithsonian Institution Press experienced extremely favorable reviews and sales from its new recording, "Big Band Jazz from the Beginnings to the Fifties," and the popular publication *Treasures of the Smithsonian*. In October 1983, the Smithsonian-managed food service operations in the National Air and Space Museum building and the Hirshhorn Museum and Sculpture Garden were restored to concession management, affecting the financial statements accordingly.

The general unrestricted funds supported a portion of the Institution's administrative costs and most importantly provided for, among other bureau activities, programs of the Cooper-Hewitt Museum, the Visitor Information and Associates' Reception Center, the Office of Telecommunications, and the Office of Folklife Programs. In addition, during fiscal year 1984, there were special allotments for several major exhibitions and related activities, including the Shanghai exhibition in the Thomas Mellon Evans Special Exhibition Gallery, the Hirshhorn tenth anniversary exhibition, and Smithsonian participation in the Edinburgh Festival. The

development of a new, integrated personnel/payroll system also received funding. Transfers to special purpose funds financed the Collections Acquisition, Scholarly Studies, and Educational Outreach Programs (\$2,250,000), stipends for pre- and postdoctoral fellows under the Smithsonian Fellowship program (\$1,738,000), income-sharing to the bureaus for their discretionary uses (\$638,000), research grants to Smithsonian professional staff (\$400,000), and other projects. An amount of \$3.4 million was transferred to plant funds for Quadrangle development and for the purchase of a residence for Smithsonian Secretaries. To build the future resources of the Institution, \$3.3 million was transferred to unrestricted endowment.

The *Unrestricted Special Purpose* funds were supplemented by approximately \$4.6 million during fiscal year 1984, principally with monies generated by bureau activities. Illustrative of such revenue activities are fees charged for films at the National Air and Space Museum and the admission and membership fees at the Cooper-Hewitt Museum. Investment income earned on unexpended fund balances and from designated endowments added \$700,000. Gifts and miscellaneous income, such as zoo parking receipts that are being reserved for future expansion of parking facilities at the National Zoo, brought in another \$1.2 million.

### *Special Foreign Currency Program*

Foreign currencies, accumulated primarily from sales of surplus agricultural commodities under Public Law 83-480 and determined by the Treasury Department to be in excess of the current needs of the United States, are made available to the Institution through the Special Foreign Currency Appropriation. In fiscal year 1984, an appropriation of excess foreign currencies equivalent to \$7,040,000 was received under this program by the Smithsonian. Included in this amount was \$4 million (as compared to last year's \$2 million) to continue a program of grants to United States institutions for field research and advanced professional training in fields of traditional Smithsonian interest and competence.

An additional \$2 million was provided to the Indian rupee reserve account established in fiscal year 1980 to ensure continued program support of the American Institute of Indian Studies. The

balance of \$1,040,000 represented the second increment of support for the international effort to restore and preserve the ancient city of Moenjodaro in Pakistan. An additional amount in nonconvertible Pakistani currency is expected to be sought by the Institution to fulfill the United States' commitment to the project. Obligations during the fiscal year by research discipline and country are provided in Table 8.

## *Construction*

New funding in fiscal year 1984 for construction and renovation projects at the Institution totaled \$24,126,000. As shown in Table 9, a federal appropriation of \$9 million was provided for restoration and renovation of existing Smithsonian facilities. A further \$3.5 million was designated specifically for construction and renovation of National Zoological Park facilities both at Rock Creek Park and Front Royal. The types of projects funded include façade, roof, and terrace repairs necessary to maintain the structural integrity of buildings; the planning and installation of fire detection and suppression systems; improvements to utility systems to increase energy efficiency and to provide stable temperature and humidity conditions for the preservation of the collections; and repairs, modifications, and improvements to preserve and maintain the Institution's buildings in a safe and energy efficient manner. In addition, federal dollars covered construction of a much-needed veterinary hospital at Front Royal.

By September 30, 1984, the Institution had achieved its \$37.5 million goal equal to one-half the estimated cost of constructing the Quadrangle Center for African, Near Eastern, and Asian Cultures. Of the total raised, \$10.8 million was received in fiscal year 1984: \$8.1 million was from gifts and earned interest and \$2.7 million was a transfer from unrestricted trust funds. It must be noted that Congress rescinded \$8 million of the \$36.5 million appropriated in fiscal year 1983 for its share of Quadrangle construction. This action was based on anticipated savings resulting from the unexpectedly low contract bid for construction. In taking this action, Congress restated its commitment to sharing equally the project's cost and indicated a willingness to reconsider its decision based on identified need.

Other nonappropriated receipts include grant support for construction of research facilities at the Tropical Research Institute, a donation for relocation of an antique greenhouse, and interest earned on unexpended gifts to plant funds. In addition to the \$2.7 million for Quadrangle construction, transfers from unrestricted funds were made for the purchase and improvement of a residence for Smithsonian Secretaries and for mortgage payments on property currently occupied by the National Museum of African Art.

### *Endowment and Similar Funds*

As of September 30, 1984, the market value of the Smithsonian Endowment Fund was \$132,416,000, as compared to \$132,031,000 on September 30, 1983. Of this, \$131,113,000 is invested in the Pooled Consolidated Endowment Fund under outside investment management, \$1,000,000 is on permanent deposit in the United States Treasury as required, and the remaining \$303,000 includes restricted stock and donated real estate. As shown in Table 10, the majority of the funds, 56 percent (\$74,672,000), represents restricted endowment, with income available only for the purposes specified by the donor. The remaining 44 percent (\$57,744,000) are unrestricted endowment funds, with income available for general support of the Institution. Certain of the unrestricted funds, such as the Lindbergh Chair of Aerospace History Endowment, have been designated by the Regents for specific purposes. A complete listing of all endowment funds, together with current book and market values, may be seen in Table 13.

Investment of the Pooled Consolidated Endowment Fund is subject to policy guidelines established by the Board of Regents. Funds are managed by professional advisory firms under the oversight of the Investment Policy Committee and the Treasury. During fiscal year 1984, the number of managers was increased to four with the addition of Granahan-Everitt Investments, Inc. As of the end of the year, the respective portion of the fund by manager was: Fiduciary Trust Company of New York (46 percent), Batterymarch Financial Management (30 percent), Torray Clark & Company (20 percent), and Granahan-Everitt Investments, Inc. (4 percent).

For fiscal year 1984, the total rate of return (market appreciation as well as interest and dividend yield) of the Pooled Consolidated

Endowment Fund, as calculated by an independent investment measurement service, was +0.4 percent, as compared to +4.6 percent for the Standard & Poor's 500 Average and +2.2 percent for the Dow Jones Industrial Average, both calculated on the same basis. The year-end market values and the recap of activity of the Consolidated Endowment over the past five years are reflected in Tables 11 and 12, respectively.

Under the Total Return Income policy followed by the Institution, total investment return is defined as yield (interest and dividends) plus appreciation, including both realized and unrealized gains. A portion of this return is made available for expenditure each year, and the remainder is reinvested as principal. This total return income payout is determined in advance of the fiscal year by the Board of Regents based on a review of anticipated interest and dividend yields, support needs of the Institution's bureaus and scientists, inflationary factors, and the five-year running average of market values, adjusted for additions or withdrawals of capital. After income payout of \$3,820,000 in fiscal year 1984 to endowments in the Pooled Consolidated Endowment Fund, \$2,794,000 of excess interest and dividend yield was available for reinvestment into endowment principal. Net transfers to endowment, primarily to unrestricted endowment funds, provided an additional \$3.5 million with \$283,000 received in gifts and other income. At the request of the donor, balances in the Shryock Endowment for Docents were transferred to restricted current funds.

Upon request, a listing of the securities held in the Pooled Consolidated Endowment Fund as of September 30, 1984, may be obtained from the Treasurer of the Institution.

### *Related Organizations*

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. Each organization is administered by its own board of trustees and reports independently on its financial status. Fiscal, administrative, and other support services are provided the Woodrow Wilson International Center for Scholars on a reimbursement basis; office space is made available for center operations.

An independent nonprofit corporation, the Friends of the National Zoo (FONZ) operates under contract a number of beneficial concessions for the National Zoological Park. During calendar year 1983 (FONZ's fiscal year), FONZ concession and rental fees to the Smithsonian amounted to approximately \$431,000. In addition, FONZ contributed other important financial and volunteer support to zoo programs. Additional information on FONZ is to be found elsewhere in *Smithsonian Year 1984*.

Reading Is Fundamental, Inc., associated with the Institution since 1968, now operates as 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 offered by the Institution on a contract basis.

For fiscal year 1984, the Smithsonian also provided administrative and fiscal assistance to the Visions Foundation, a start-up venture in the arts.

### *Accounting and Auditing*

The Institution's funds, federal and nonappropriated, are audited annually by the independent public accounting firm of Coopers and Lybrand. Their report for fiscal year 1984 is reprinted on the following pages. The Smithsonian's internal audit staff audits Smithsonian activities and financial systems throughout the year. Additionally, the Defense Contract Audit Agency conducts an annual audit of grants and contracts received from federal agencies and monitors allocated administrative costs.

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



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

	FY 1982	FY 1983	FY 1984
INSTITUTIONAL OPERATING FUNDS			
FUNDS PROVIDED:			
Federal Appropriations—Salaries & Expenses .....	\$131,170	\$147,256	\$156,683
Federal Agency Grants & Contracts .....	13,217	13,125	14,878
Nonappropriated Trust Funds:			
For Restricted Purposes .....	6,821	9,162	10,182
For Unrestricted & Special Purposes:			
Auxiliary & Bureau Activities Revenues—Gross ...	97,350	104,129	117,550
Less Related Expenses .....	(88,596)	(89,397)	(97,898)
Auxiliary & Bureau Activities Net Revenue .....	8,754	14,732	19,652
Investment, Gift, & Other Income .....	4,808	4,302	5,057
Total Net Unrestricted & Special Purpose Revenue	13,562	19,034	24,709
Total Nonappropriated Trust Funds*—Gross .....	108,979	117,593	132,789
—Net .....	20,383	28,196	34,891
Total Operating Funds Provided—Gross .....	253,366	277,974	304,350
—Net .....	\$164,770	\$188,577	\$206,452
FUNDS APPLIED:			
Science .....	\$ 64,837	\$ 68,895	\$ 74,134
Less SAO Overhead Recovery .....	(2,487)	(2,264)	(2,226)
History & Art .....	26,762	30,979	33,011
Public Service .....	3,782	2,843	3,526
Museum Programs .....	8,539	9,702	10,976
Special Programs .....	9,533	13,342	14,805
Associates & Business Management .....	543	1,057	884
Administration—Federal** .....	9,719	11,032	12,201
—Nonappropriated Trust Funds .....	5,733	7,226	8,211
Less Smithsonian Overhead Recovery .....	(5,338)	(6,331)	(6,528)
Facilities Services .....	39,327	43,653	46,821
Total Operating Funds Applied .....	160,950	180,134	195,815
Transfers (Nonappropriated Trust Funds)			
Unrestricted Funds—To Plant .....	1,064	2,069	3,424
—To Endowment .....	2,259	3,084	3,313
Restricted Funds—To Endowment .....	318	637	222
Total Operating Funds Applied & Transferred Out ....	\$164,591**	\$185,924	\$202,774
CHANGES IN NONAPPROPRIATED TRUST FUND BALANCES:			
Restricted Purpose (Incl. Fed. Agency Gr. & Contracts) \$	(45)	\$ 1,765	\$ 1,426
Unrestricted—General Purpose .....	5	28	10
—Special Purpose .....	404	860	2,242
Total .....	\$ 364	\$ 2,653	\$ 3,678
YEAR-END BALANCES—NONAPPROPRIATED TRUST FUNDS:			
Restricted Purpose .....	\$ 5,906	\$ 7,671	\$ 9,097
Unrestricted—General Purpose .....	5,048	5,076	5,086
—Special Purpose .....	13,003	13,863	16,105
Total .....	\$ 23,957	\$ 26,610	\$ 30,288
OTHER FEDERAL APPROPRIATIONS			
Special Foreign Currency Program .....	\$ 4,320	\$ 2,000	\$ 7,040
Construction .....	9,744	46,500	4,500
Total Federal Appropriations (Incl. S&E above) .....	\$145,234	\$195,756	\$168,223

\*Figures do not include gifts and other income directly to Plant and Endowment Funds: FY 1982—\$2,197,000; FY 1983—\$15,048,000; FY 1984—\$8,484,000.

\*\*Includes unobligated funds returned to Treasury: FY 1982—\$124,000; FY 1983—\$62,000; FY 1984—\$102,000.

\*\*\*Includes \$185,000 available for FDR Centennial carried forward from FY 1981.

TABLE 2. *Source and Application of Operating Funds*  
*Year Ended September 30, 1984*  
 (Excludes Special Foreign Currency Funds, Plant Funds and Endowments)  
 (In \$1,000s)

Funds	Nonfederal Funds						
	Federal funds	Total non-federal funds	Unrestricted			Restricted	
			General	Auxiliary activities	Special purpose	General	Grants and contracts
FUND BALANCES—10/1/83 . . . . .	\$ —	\$ 26,610	\$ 5,076	\$ —	\$ 13,863	\$ 7,421	\$ 250
<b>FUNDS PROVIDED</b>							
Federal Appropriations . . . . .	156,683	—	—	—	—	—	—
Investment Income . . . . .	—	7,023	3,108	—	679	3,236	—
Grants and Contracts . . . . .	—	14,876	—	—	—	—	14,876
Gifts . . . . .	—	8,701	35	2,698	109	5,859	—
Sales and Revenue . . . . .	—	114,852	—	112,179	2,673	—	—
Other . . . . .	—	2,215	(6)	—	1,132	1,087	2
Total Provided . . . . .	156,683	147,667	3,137	114,877	4,593	10,182	14,878
Total Available . . . . .	\$156,683	\$174,277	\$ 8,213	\$114,877	\$18,456	\$17,603	\$15,128
<b>FUNDS APPLIED</b>							
<i>Science:</i>							
Assistant Secretary . . . . .	524	512	28	—	38	117	329
Natl. Mus. of Nat. History/ Museum of Man . . . . .	18,734	3,814	310	—	794	1,387	1,323
Astrophysical Observatory . . . . .	7,441	15,300	2,244	—	646	222	12,188
Less Overhead Recovery . . . . .	—	(2,226)	(2,226)	—	—	—	—
Tropical Research Institute . . . . .	3,424	784	103	—	413	264	4
Environmental Rsch. Center . . . . .	3,098	481	74	—	90	19	298
Natl. Air & Space Museum . . . . .	7,477	2,666	39	—	2,354	134	139
Natl. Zoological Park . . . . .	10,720	465	66	—	225	44	130
Total Science . . . . .	51,418	21,796	638	—	4,560	2,187	14,411
<i>History and Art:</i>							
Assistant Secretary . . . . .	598	115	108	—	7	—	—
Natl. Mus. of Am. History . . . . .	9,637	1,217	245	—	643	325	4
Natl. Mus. of American Art . . . . .	4,465	698	48	—	123	526	1
Natl. Portrait Gallery . . . . .	3,216	1,599	17	—	807	775	—
Hirshhorn Museum . . . . .	2,851	93	9	—	73	11	—
Center for Asian Art . . . . .	1,058	1,584	50	—	37	1,497	—
Archives of American Art . . . . .	693	929	1	—	—	928	—
Cooper-Hewitt Museum . . . . .	843	2,055	739	—	1,022	195	99
Natl. Mus. of African Art . . . . .	1,043	210	73	—	104	33	—
Anacostia Museum . . . . .	741	34	32	—	—	2	—
Total History and Art . . . . .	25,145	8,534	1,322	—	2,816	4,292	104

TABLE 2. *Source and Application of Operating Funds—continued*  
*Year Ended September 30, 1984*  
 (Excludes Special Foreign Currency Funds, Plant Funds and Endowments)  
 (In \$1,000s)

Funds	Nonfederal Funds						
	Federal funds	Total non-federal funds	Unrestricted			Restricted	
			General	Auxiliary activities	Special purpose	General	Grants and contracts
<i>Public Service:</i>							
Assistant Secretary .....	456	338	272	—	57	9	—
Reception Center .....	174	589	547	—	42	—	—
Telecommunications .....	221	716	465	—	200	51	—
Smithsonian Press .....	1,023	10,676	36	10,634	—	6	—
Total Public Service ...	1,874	12,319	1,320	10,634	299	66	—
<i>Museum Programs:</i>							
Assistant Secretary .....	631	470	48	—	209	212	1
Registrar .....	90	—	—	—	—	—	—
Conserv. Analytical Laboratory	883	1	—	—	1	—	—
Libraries .....	3,726	337	309	—	11	17	—
Exhibits .....	1,413	(40)	—	—	(40)	—	—
Traveling Exhib. Service .....	327	3,241	182	1,451	80	1,486	42
Archives .....	492	111	110	—	1	—	—
National Museum Act .....	785	—	—	—	—	—	—
Total Museum Programs	8,347	4,120	649	1,451	262	1,715	43
<i>Special Programs:</i>							
Am. Studies & Folklife Pgm. .	594	801	474	—	7	37	283
Int. Environ. Science Pgm. ...	687	—	—	—	—	—	—
Academic & Educational Pgm.	717	1,666	251	—	1,282	133	—
Collections Mgt./Inventory ...	879	—	—	—	—	—	—
Major Exhibition Program ....	522	—	—	—	—	—	—
Museum Support Center .....	7,649	269	—	—	269	—	—
JFK Center Grant .....	1,000	—	—	—	—	—	—
Total Special Programs .	12,048	2,736	725	—	1,558	170	283
Associate Programs .....	—	60,313	782	59,421	98	12	—
Business Management .....	—	24,280	—	24,280	—	—	—
Administration .....	12,099	8,288	7,985	78	106	119	—
Less Overhead Recovery ...	—	(6,528)	(6,528)	—	—	—	—
Facilities Services .....	45,650	1,172	1,122	—	40	10	—
<i>Transfers Out/(In):</i>							
Treasury .....	102*	—	—	—	—	—	—
Coll. Acq., Schol. St., Outreach	—	—	2,250	—	(2,250)	—	—
Net Auxiliary Activities .....	—	—	(18,375)	18,375	—	—	—
Other Designated Purposes ...	—	—	4,541	638	(5,179)	—	—
Plant .....	—	3,424	3,400	—	24	—	—
Endowment .....	—	3,535	3,296	—	17	222	—
Total Transfers .....	102	6,959	(4,888)	19,013	(7,388)	222	—
Total Funds Applied ...	\$156,683	\$143,989	\$ 3,127	\$114,877	\$ 2,351	\$ 8,793	\$14,841
FUND BALANCES 9/30/84 .. \$	—	\$ 30,288	\$ 5,086	\$ —	\$16,105	\$ 8,810	\$ 287

\*Unobligated funds returned to Treasury.

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

<i>Federal Agencies</i>	FY 1982	FY 1983	FY 1984
Agency for International Development .....	\$ —	\$ —	\$ 428
Department of Commerce .....	174	(7)	57
Department of Defense .....	1,001	1,299	1,056
Department of Energy .....	448	358	227
Department of Health and Human Services .....	325	280	273
Department of Interior .....	268	238	204
National Aeronautics and Space Administration*	9,303	9,551	11,275
National Science Foundation** .....	1,079	928	820
Other .....	837	415	501
<b>Total .....</b>	<b>\$13,435</b>	<b>\$13,062</b>	<b>\$14,841</b>

\*Includes \$264,000 (FY 1982), \$197,000 (FY 1983), and \$399,000 (FY 1984) in subcontracts from other organizations receiving prime contract funding from NASA.

\*\*Includes \$230,000 (FY 1982), \$196,000 (FY 1983), and \$250,000 (FY 1984) in NSF subcontracts from the Chesapeake Research Consortium.

TABLE 4. *Restricted Operating Trust Funds \**  
*Fiscal Years 1982–1984*  
(In \$1,000s)

<i>Item</i>	<i>Investment</i>	<i>Gifts</i>	<i>Miscellaneous</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 1982—Total .....	\$2,886	\$3,154	\$ 781	\$ 6,821	\$6,571	\$ (77)	\$ 173	\$5,719
FY 1983—Total .....	\$2,971	\$5,419	\$ 772	\$ 9,162	\$6,823	\$ (637)	\$1,702	\$7,421
FY 1984:								
National Museum of								
Natural History .....	\$1,150	\$ 837	\$ 107	\$ 2,094	\$1,387	\$ —	\$ 707	\$1,441
Astrophysical Observatory	91	122	—	213	222	—	(9)	(16)
Tropical Research								
Institute .....	44	195	—	239	264	—	(25)	235
National Air & Space								
Museum .....	69	54	—	123	134	(25)	(36)	79
National Zoological Park	19	69	—	88	44	—	44	149
Other Science .....	139	130	—	269	136	(113)	20	582
National Museum of								
American History ....	58	239	1	298	325	2	(25)	527
National Museum of								
American Art .....	66	522	9	597	526	—	71	480
National Portrait Gallery	18	772	(2)	788	775	—	13	179
Hirshhorn Museum .....	70	11	—	81	11	—	70	736
Center for Asian Art ....	1,131	69	630	1,830	1,497	(15)	318	1,552
Archives of American Art	45	778	320	1,143	928	—	215	530
Cooper-Hewitt Museum .	72	238	—	310	195	—	115	693
Traveling Exhibition								
Service .....	79	1,415	—	1,494	1,486	—	8	930
All Other .....	185	408	22	615	641	(71)	(97)	713
<b>Total FY 1984 ....</b>	<b>\$3,236</b>	<b>\$5,859</b>	<b>\$1,087</b>	<b>\$10,182</b>	<b>\$8,571</b>	<b>\$ (222)</b>	<b>\$1,389</b>	<b>\$8,810</b>

\*Does not include Federal Agency Grants and Contracts.

TABLE 5. *Unrestricted Trust Funds—General and Auxiliary Activities*  
*Fiscal Years 1982–1984*  
(In \$1,000s)

<i>Item</i>	FY 1982	FY 1983	FY 1984
<b>FUNDS PROVIDED</b>			
<b>General Income:</b>			
Investments .....	\$ 2,921	\$ 2,489	\$ 3,108
Gifts .....	18	24	35
Miscellaneous .....	83	46	(6)
Total General Income .....	3,022	2,559	3,137
<b>Auxiliary Activities Income (Net):</b>			
Associates* .....	8,126	9,864	13,075
<b>Business Management:</b>			
—Museum Shops and Mail Order .....	856	2,710	3,711
—Concessions, Parking and Food Services ..	1,513	1,670	1,691
—Other .....	(322)	(300)	(206)
Performing Arts* .....	(2,544)	—	—
Smithsonian Press* .....	670	232	1,158
Traveling Exhibitions .....	(298)	(363)	(421)
Photo Services .....	11	19	5
Total Auxiliary Activities .....	8,012	13,832	19,013
Total Funds Provided (Net) .....	11,034	16,391	22,150
<b>EXPENDITURES AND TRANSFERS</b>			
Administrative and Program Expense .....	12,505	14,727	16,769
Less Administrative Recovery .....	7,825	8,595	8,754
Net Expense .....	4,680	6,132	8,015
<b>Less Transfers:</b>			
To Special Purpose for Program Purposes ....	3,328	5,205	7,429
To Plant Funds .....	1,000	2,005	3,400
To Endowment Funds .....	2,021	3,021	3,296
NET ADDITION TO FUND BALANCE .....	5	28	10
ENDING FUND BALANCE .....	\$ 5,048	\$ 5,076	\$ 5,086

\*Effective FY 1983, the Division of Performing Arts recording program was transferred to the Smithsonian Press and the performing arts activities for which tickets are sold to the public were transferred to the Resident Associate Program.

TABLE 6. *Auxiliary Activities Fiscal Years 1982-1984*  
(In \$1,000s)

<i>Activity</i>	<i>Sales and other revenue</i>	<i>Gifts</i>	<i>Less cost of sales</i>	<i>Gross revenue</i>	<i>Expenses</i>	<i>Net revenue** (loss)</i>
FY 1982 .....	\$ 92,668	\$ 1,757	\$56,166	\$38,259	\$30,247	\$ 8,012
FY 1983 .....	\$ 98,826	\$ 2,171	\$57,527	\$43,470	\$29,638	\$13,832
FY 1984:						
Associates .....	\$ 69,798	\$ 2,698	\$46,127	\$26,369	\$13,294	\$13,075
Business Management:						
—Museum Shops* .....	26,762	—	14,752	12,010	8,299	3,711
—Concessions/Parking/ Food Services .....	2,617	—	45	2,572	881	1,691
—Other .....	97	—	—	97	303	(206)
Smithsonian Press .....	11,792	—	3,703	8,089	6,931	1,158
Traveling Exhibitions ....	1,030	—	671	359	780	(421)
Photo Services (Administration) .....	83	—	11	72	67	5
Total FY 1984 .....	\$112,179	\$ 2,698	\$65,309	\$49,568	\$30,555	\$19,013

\*Includes Museum Shops and Mail Order.

\*\*Before revenue-sharing transfers to participating Smithsonian bureaus of \$380,000 (FY 1982); \$486,000 (FY 1983); and \$638,000 (FY 1984).

TABLE 7. *Unrestricted Special Purpose Funds*  
*Fiscal Years 1982-1984*  
(In \$1,000s)

Item	Revenue				Deductions				
	Investment	Bureau activities	Gifts and other revenue	Total revenue	Transfers in (out)	Program expense	Bureau activity expense	Net increase (decrease)	Fund balance end of year
FY 1982 .....	\$719	\$2,925	\$1,067	\$4,711	\$2,784	\$4,908	\$2,183	\$ 404	\$13,003
FY 1983 .....	\$686	\$3,132	\$1,057	\$4,875	\$5,078	\$6,861	\$2,232	\$ 860	\$13,863
FY 1984:									
National Museum of Natural History .....	\$ 50	\$ 7	\$ 30	\$ 87	\$ 959	\$ 794	\$ —	\$ 252	\$ 854
Astrophysical Observatory .....	10	137	65	212	502	491	155	68	679
Tropical Research Institute .....	22	131	—	153	234	193	220	(26)	153
National Air and Space Museum .....	243	1,400	35	1,678	73	1,433	921	(603)	1,993
Environmental Research Center* .....	7	23	16	46	88	80	10	44	175
National Zoological Park .....	210	—	200	410	90	225	—	275	2,310
National Museum of American History ....	23	13	85	121	566	638	5	44	482
National Museum of American Art .....	14	5	139	158	23	119	4	58	175
National Portrait Gallery .....	5	9	58	72	743	799	8	8	135
Hirshhorn Museum .....	15	—	17	32	327	73	—	286	464
Cooper-Hewitt Museum .	1	849	347	1,197	23	374	648	198	202
National Museum of African Art .....	—	7	6	13	18	101	3	(73)	48
Office of Telecommunications .....	—	3	—	3	19	167	33	(178)	274
Liability Reserves .....	—	—	—	—	—	16	—	(16)	3,273
Unallocated Coll. Acq., Schol. Studies, and Outreach .....	—	—	—	—	133	—	—	133	570
Fellowships .....	24	—	—	24	1,363	1,194	—	193	1,034
Museum Support Center Equipment .....	—	—	—	—	—	269	—	(269)	401
All Other .....	55	89	243	387	2,227	739	27	1,848	2,883
Total FY 1984 ....	\$679	\$2,673	\$1,241	\$4,593	\$7,388	\$7,705	\$2,034	\$2,242	\$16,105

Effective in FY 1983, the Chesapeake Bay Center for Environmental Studies was merged with the Radiation Biology Laboratory to form the Smithsonian Environmental Research Center.

TABLE 8. *Special Foreign Currency Program*  
*Fiscal Year 1984—Obligations*  
(In \$1,000s)

Country	Archaeology	Systematic and environmental biology	Astrophysics and earth sciences	Museum programs	Grant administration	Total
India .....	\$4,730	\$415	\$111	\$405	\$253*	\$5,914
Burma .....	1	3	—	—	—	4
Pakistan .....	1,137	239	6	—	19	1,401
Total .....	<u>\$5,868</u>	<u>\$657</u>	<u>\$117</u>	<u>\$405</u>	<u>\$272</u>	<u>\$7,319</u>

\*Includes \$180,000 for translation services in support of all programs.

TABLE 9. *Construction and Plant Funds Fiscal Years 1982-1984*  
(In \$1,000s)

Sources	FY 1982	FY 1983	FY 1984
<b>FUNDS PROVIDED</b>			
<b>Federal Appropriations:</b>			
National Zoological Park .....	\$ 1,104	\$ 1,550	\$ 3,500
Restoration and Renovation of Buildings .....	7,680	8,450	9,000
Quadrangle .....	960	36,500	(8,000)
Total Federal Appropriations .....	<u>9,744</u>	<u>46,500</u>	<u>4,500</u>
<b>Nonappropriated Trust Funds:</b>			
<b>Income—Gift and Other</b>			
Special Exhibits Gallery .....	1	—	—
Smithsonian Environmental Research Center—Gain on Sale .....	—	44	—
Smithsonian Tropical Research Institute—Research Facilities .....	—	66	20
Erection of Jacksonville Bandstand .....	—	174	12
Cooper-Hewitt Museum .....	31	163	32
American Art and Portrait Gallery Building Quadrangle and Related .....	183	21	21
Smithsonian Institution Building South Entrance .....	1,650	14,574	8,098
Entrance .....	64	5	3
Bequest of Real Estate .....	225	—	—
Belmont Conference Center—Gain on Sale ..	—	1,405*	—
Horticulture Antique Greenhouse .....	—	—	16
Total Income .....	<u>2,154</u>	<u>16,452</u>	<u>8,202</u>
<b>Transfers from Current Funds:</b>			
National Museum of African Art .....	24	24	24
Quadrangle .....	1,040	2,040	2,700
East Garden .....	—	5	—
Secretaries' Residence .....	—	—	700
Total Transfers .....	<u>1,064</u>	<u>2,069</u>	<u>3,424</u>
Total Funds Provided .....	<u>\$12,962</u>	<u>\$65,021</u>	<u>\$16,126</u>

\*Total proceeds realized of \$1,993,000 of which \$1,750,000 was directed to construction of the Museum Support Center and \$208,000 was transferred to endowment funds.



TABLE 10. Endowment and Similar Funds September 30, 1984

	Book value	Market value
<b>ASSETS</b>		
Pooled Consolidated Endowment Funds:		
Cash and Equivalents .....	\$ 13,525,970	\$ 13,525,970
Bonds .....	11,346,884	11,431,145
Convertible Bonds .....	4,048,125	4,408,300
Stocks .....	87,939,422	101,747,648
Total Pooled Funds .....	<u>116,860,401</u>	<u>131,113,063</u>
Nonpooled Endowment Funds:		
Loan to U.S. Treasury in Perpetuity .....	1,000,000	1,000,000
Notes Receivable .....	41,946	41,946
Bonds .....	10,000	9,600
Common Stocks .....	1,999	12,000
Land .....	239,000	239,000
Total Nonpooled Funds .....	<u>1,292,945</u>	<u>1,302,546</u>
Total Endowment and Similar Fund Balances ..	<u>\$118,153,346</u>	<u>\$132,415,609</u>
<b>FUND BALANCES</b>		
Unrestricted Purpose: True Endowment .....	\$ 3,953,128	\$ 5,014,889
Quasi Endowment .....	49,312,990	52,728,976
Total Unrestricted Purpose .....	<u>53,266,118</u>	<u>57,743,865</u>
Restricted Purpose: True Endowment .....	48,031,154	55,770,264
Quasi Endowment .....	16,856,074	18,901,480
Total Restricted Purpose .....	<u>64,887,228</u>	<u>74,671,744</u>
Total Endowment and Similar Fund Balances ..	<u>\$118,153,346</u>	<u>\$132,415,609</u>

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

Fund	9/30/80	9/30/81	9/30/82	9/30/83	9/30/84
Unrestricted .....	\$28,384	\$30,399	\$35,974	\$ 54,677	\$ 56,592
Freer .....	20,771	20,472	22,596	32,096	31,125
Other Restricted .....	28,175	27,101	30,288	43,911	43,396
Total .....	<u>\$77,330</u>	<u>\$77,972</u>	<u>\$88,858</u>	<u>\$130,684</u>	<u>\$131,113</u>

TABLE 12. Changes in Pooled Consolidated Endowment Funds  
for Fiscal Year 1984  
(In \$1,000s)

Fund	Market value 9/30/83	Gifts and transfers	Inter-est dividends*	Income paid out	Sub-total	Change in market value	Market value 9/30/84
Unrestricted .....	\$ 54,677	\$3,083	\$2,821	\$1,378	\$ 59,203	\$(2,611)	\$ 56,592
Freer .....	32,096	—	1,597	1,029	32,664	(1,539)	31,125
Other Restricted ..	43,911	807	2,196	1,413	45,501	(2,105)	43,396
Total .....	<u>\$130,684</u>	<u>\$3,890</u>	<u>\$6,614</u>	<u>\$3,820</u>	<u>\$137,368</u>	<u>\$(6,255)</u>	<u>\$131,113</u>

\*Income earned, less managers' fees of \$546,041.

TABLE 13. Endowment Funds September 30, 1984

	Principal		Income	
	Book value	Market value	Net income	Unexpended balance
<b>UNRESTRICTED PURPOSE—TRUE:</b>				
Avery Fund* .....	\$ 131,518	\$ 170,081	\$ 4,735	\$ —0—
Higbee, Harry, Memorial .....	38,243	49,530	1,205	—0—
Hodgkins Fund* .....	226,558	243,573	10,860	—0—
Morrow, Dwight W. ....	228,867	304,678	7,415	—0—
Mussinan, Alfred .....	72,528	89,101	2,169	—0—
Olmsted, Helen A. ....	2,404	3,110	76	—0—
Poore, Lucy T. and George W.* ...	512,423	677,406	17,621	—0—
Porter, Henry Kirke, Memorial ...	846,465	1,125,065	27,382	—0—
Sanford, George H.* .....	3,784	4,644	160	—0—
Smithson, James* .....	567,676	566,646	36,809	—0—
Walcott, Charles D. and Mary Vaux, Research (Designated)* ..	1,322,662	1,781,055	58,759	31,064
Subtotal .....	3,953,128	5,014,889	167,191	31,064
<b>UNRESTRICTED PURPOSE—QUASI:</b>				
Forrest, Robert Lee .....	3,414,389	3,390,484	82,519	—0—
General Endowment* .....	41,529,143	44,823,288	1,059,803	—0—
Goddard, Robert H. ....	27,020	26,850	654	—0—
Habel, Dr. S.* .....	524	523	34	—0—
Hart, Gustavus E. ....	1,706	2,008	49	—0—
Henry, Caroline .....	4,225	4,955	121	—0—
Henry, Joseph and Harriet A. ....	170,033	198,214	4,824	—0—
Heys, Maude C. ....	327,238	329,912	8,030	—0—
Hinton, Carrie Susan .....	87,159	96,510	2,349	—0—
Lambert, Paula C. ....	156,692	177,060	4,309	—0—
Medinus, Grace L. ....	3,238	3,283	80	—0—
Rhees, William Jones* .....	2,263	2,539	87	—0—
Safford, Clara Louise .....	149,209	154,099	3,751	—0—
Smithsonian Bequest Fund* .....	677,280	700,361	13,501	—0—
Taggart, Ganson .....	1,434	1,878	46	—0—
Abbott, William L. (Designated) ..	402,179	470,057	15,536	16,614
Barstow, Frederic D. (Designated) .	3,368	3,929	130	4,897
Lindbergh Chair of Aerospace History (Designated) .....	1,563,652	1,628,013	53,808	72,714
Lindbergh, Charles A. (Designated)	12,628	14,278	1,296	7,965
Lyon, Marcus Ward, Jr. (Designated) .....	13,541	14,007	463	2,309
Webb, James E., Fellowship (Designated) .....	766,069	686,728	22,670	11,654
Subtotal .....	49,312,990	52,728,976	1,274,060	116,153
Total Unrestricted Purpose .....	\$ 53,266,118	\$ 57,743,865	\$ 1,441,251	\$ 147,217
<b>RESTRICTED PURPOSE—TRUE:</b>				
Arthur, James .....	\$ 114,851	\$ 153,962	\$ 5,089	\$ 6,138
Baird, Spencer Fullerton .....	104,163	137,626	4,549	11,910
Barney, Alice Pike, Memorial .....	82,338	110,330	3,647	23,935
Batchelor, Emma E. ....	106,226	114,125	3,772	60,430
Beauregard, Catherine, Memorial ..	132,066	154,177	5,096	42,024
Bergen, Charlotte V. ....	11,674	11,394	377	635
Brown, Roland W. ....	88,860	105,813	3,497	16,965
Canfield, Frederick A. ....	117,005	169,631	5,607	220
Casey, Thomas Lincoln .....	42,299	49,429	1,634	2,671
Chamberlain, Frances Lea .....	80,844	108,331	3,581	17,875
Cooper Fund for Paleobiology Division of Mammals Curators Fund .....	83,569	84,367	2,732	—0—
Drake Foundation .....	6,122	7,282	226	4,040
Drouet, Francis and Louderback, Harold B. Fund .....	545,928	600,711	19,778	86,137
Dykes, Charles, Bequest .....	175,273	171,812	830	18,992
Eickemeyer, Florence Brevoort ....	158,678	181,773	6,008	38,674
Freer, Charles L. ....	31,200	41,798	1,381	20,935
Grimm, Sergei N. ....	26,702,183	31,125,303	1,028,730	1,249,227
Groom, Barrick W. ....	97,990	97,518	3,223	11,279
Guggenheim, Daniel and Florence .	52,723	48,658	1,206	994
Hamilton, James* .....	380,996	398,253	13,163	33,032
Henderson, Edward P., Meteorite Fund .....	3,815	4,283	226	1,288
Hewitt, Eleanor G., Repair Fund ..	1,096	1,369	45	398
Hewitt, Sarah Cooper .....	22,847	25,039	828	—0—
Hillyer, Virgil .....	135,099	147,794	4,885	—0—
Hitchcock, Albert S. ....	22,180	25,921	857	11,211
Hodgkins Fund* .....	4,561	6,168	204	110
Hrdlicka, Ales and Marie .....	104,830	104,644	6,818	33,107
	160,959	191,677	6,335	6,951

TABLE 13. *Endowment Funds September 30, 1984—continued*

	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>Net income</i>	<i>Unexpended balance</i>
Hughes, Bruce .....	54,978	73,720	2,437	20,537
Johnson, Seward, Trust Fund for Oceanography .....	11,045,313	12,945,474	427,883	108,753
Kellogg, Remington, Memorial ...	78,269	79,842	2,639	8,238
Kramar, Nada .....	8,898	10,077	333	2,849
Lindsey, Jessie H.* .....	12,248	12,142	1,155	7,989
Maxwell, Mary E. ....	56,335	75,532	2,496	23,283
Milliken, H. Oothout, Memorial ..	674	736	24	24
Mineral Endowment .....	305,920	339,220	11,212	303
Mitchell, William A. ....	41,670	46,405	1,534	2,343
Natural History and Conservation .	75,300	80,731	2,571	—0—
Nelson, Edward William .....	66,401	85,535	2,827	6,037
Petrocelli, Joseph, Memorial .....	21,324	28,650	947	25,070
Reid, Addison T.* .....	71,536	81,609	3,067	6,513
Roebing Fund .....	345,925	462,053	15,271	82
Rollins, Miriam and William .....	667,383	812,837	26,614	15,885
Shryock Endowment for Docents .	—0—	—0—	49	—0—
Sims, George W. ....	58,999	56,727	1,830	1,516
Sprague Fund .....	4,415,010	4,860,495	159,141	42,319
Springer, Frank .....	51,747	68,949	2,279	27,204
Stern, Harold P., Memorial .....	461,817	512,004	16,453	46,880
Stevenson, John A., Mycological Library .....	16,212	18,837	623	1,430
Walcott, Charles D. and Mary Vaux, Research .....	429,518	511,841	16,727	13,440
Walcott Research Fund, Botanical Publications .....	163,589	214,597	7,093	19,401
Williston, Samuel Wendell, Diptera Research .....	8,996	9,438	299	1,100
Zerbee, Frances Brinckle .....	2,717	3,625	120	4,530
Subtotal .....	48,031,154	55,770,264	1,839,948	2,084,904
<b>RESTRICTED PURPOSE—QUASI:</b>				
Armstrong, Edwin James .....	10,125	10,962	356	—0—
Au Panier Fleuri .....	64,026	63,799	2,109	—0—
Bacon, Virginia Purdy .....	293,747	320,211	10,583	33,712
Becker, George F. ....	506,092	554,225	18,318	3,719
Desautels, Paul E. ....	36,534	42,266	1,371	—0—
Gaver, Gordon .....	3,972	4,507	149	3,296
Hachenberg, George P. and Caroline .....	13,933	16,847	557	1,209
Hanson, Martin Gustav and Caroline R. ....	29,993	35,038	1,158	5,785
Hunterdon Endowment .....	10,019,276	11,513,070	580,521	131,853
ICBP Endowment .....	582,335	596,758	18,023	—0—
ICBP—Conservation Endowment ..	130,818	131,280	4,196	4,558
Johnson, E. R. Fenimore .....	25,183	25,942	857	2,254
Loeb, Morris .....	295,797	347,498	11,485	15,116
Long, Annette E. and Edith C. ....	1,578	2,146	71	290
Myer, Catherine Walden .....	68,169	79,642	2,632	11,546
Noyes, Frank B. ....	3,341	4,014	133	2,280
Noyes, Pauline Riggs .....	30,151	30,063	994	—0—
Pell, Cornelia Livingston .....	25,090	29,401	972	1,907
Ramsey, Adm. and Mrs. Dewitt Clinton* .....	965,910	1,007,242	33,249	6,030
Rathbun, Richard, Memorial .....	35,974	42,127	1,392	18,273
Roebing Solar Research .....	80,966	90,574	2,994	4,666
Ruef, Bertha M. ....	98,186	101,098	3,341	13,096
Schultz, Leonard P. ....	26,141	30,474	1,007	19,465
Seidell, Atherton .....	2,007,564	2,189,643	72,370	263,285
Smithsonian Agency Account .....	1,032,286	1,085,132	25,957	—0—
Strong, Julia D. ....	33,811	39,586	1,308	642
Witherspoon, Thomas A., Memorial	435,076	507,935	16,788	9,195
Subtotal .....	16,856,074	18,901,480	612,891	552,177
Total Restricted Purpose .....	\$ 64,887,228	\$ 74,671,744	\$ 2,452,839	\$ 2,637,081
<b>TOTAL ENDOWMENT FUNDS ..</b>	<b>\$118,153,346</b>	<b>\$132,415,609</b>	<b>\$3,894,090**</b>	<b>\$2,784,298</b>

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

\*\*Total Return Income payout; does not include \$215,411 of interest income for investment of unexpended income balances.

COOPERS & LYBRAND  
CERTIFIED PUBLIC ACCOUNTANTS

To the Board of Regents  
Smithsonian Institution

We have examined the statement of financial condition of the Smithsonian Institution as of September 30, 1984 and the related statement of financial activity for the year then ended. Our examination was made in accordance with generally accepted auditing standards and with generally accepted governmental 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 financial statements of the Smithsonian Institution for the year ended September 30, 1983, totals of which are included in the accompanying financial statements for comparative purposes only.

In our opinion, the financial statements for the year ended September 30, 1984, referred to above, present fairly the financial position of the Smithsonian Institution as of September 30, 1984, and the results of its operations and changes in its 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 14, 1984

SMITHSONIAN INSTITUTION

Statement of Financial Condition

September 30, 1984

(with comparative totals for September 30, 1983)

(thousands of dollars)

	Trust funds	Federal funds	Totals, all funds	Totals, 1983
<b>ASSETS:</b>				
Cash on hand and in banks (Note 3) . . . .	\$ 3,827	\$ 10	\$ 3,837	\$ 1,971
Fund balances with U.S. Treasury (Note 4)	333	69,078	69,411	73,860
Investments (Notes 1 and 5) . . . . .	166,806	—	166,806	144,518
Receivables (Note 7) . . . . .	45,582	220	45,802	36,778
Advance payments (Note 8) . . . . .	697	13,135	13,832	13,490
Merchandise inventory (Note 1) . . . . .	8,902	—	8,902	8,459
Materials and supplies inventory (Note 1)	2,017	1,249	3,266	3,499
Amount to be provided for accrued annual leave (Note 1) . . . . .	—	7,124	7,124	6,690
Prepaid and deferred expense (Note 1) . . .	11,573	—	11,573	9,668
Property and equipment (Notes 1 and 9) . .	23,234	184,967	208,201	197,516
Total assets . . . . .	<u>\$262,971</u>	<u>\$275,783</u>	<u>\$538,754</u>	<u>\$496,449</u>
<b>LIABILITIES:</b>				
Accounts payable and accrued expenses, including interfund payable of \$22,311 (Note 7) . . . . .	\$ 34,889	\$ 10,202	\$ 45,091	\$ 39,096
Deposits held in custody for other organi- zations (Note 2) . . . . .	3,042	42	3,084	2,187
Accrued annual leave (Note 1) . . . . .	1,335	7,124	8,459	7,839
Deferred revenue (Note 1) . . . . .	24,815	—	24,815	22,015
Total liabilities . . . . .	<u>64,081</u>	<u>17,368</u>	<u>81,449</u>	<u>71,137</u>
UNDELIVERED ORDERS (Note 1) . . . . .	—	62,597	62,597	56,778
<b>FUND BALANCES (Note 1):</b>				
<b>Current:</b>				
Unrestricted general purpose . . . . .	5,086	—	5,086	5,076
Special purpose . . . . .	16,105	—	16,105	13,863
Restricted . . . . .	9,097	—	9,097	7,671
Endowment and similar funds (Note 6) . .	118,153	—	118,153	103,009
Plant funds (Note 9) . . . . .	50,449	—	50,449	39,242
Total trust fund balances . . . . .	<u>198,890</u>	<u>—</u>	<u>198,890</u>	<u>168,861</u>
Operating funds . . . . .	—	175	175	75
Construction funds . . . . .	—	9,427	9,427	18,068
Capital funds . . . . .	—	186,216	186,216	181,530
Total federal fund balances . . . . .	<u>—</u>	<u>195,818</u>	<u>195,818</u>	<u>199,673</u>
Total all fund balances . . . . .	<u>198,890</u>	<u>195,818</u>	<u>394,708</u>	<u>368,534</u>
Total liabilities, undelivered orders and fund balances . . . . .	<u>\$262,971</u>	<u>\$275,783</u>	<u>\$538,754</u>	<u>\$496,449</u>

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

SMITHSONIAN INSTITUTION  
Statement of Financial Activity  
for the year ended September 30, 1984  
(with comparative totals for the year ended September 30, 1983)  
(thousands of dollars)

	TRUST FUNDS		
	Total trust funds	Current funds	Endowment and similar funds
<b>Revenue and other additions:</b>			
Appropriations, net (Note 10) .....	\$ —	\$ —	\$ —
Auxiliary activities revenue .....	114,852	114,852	—
Federal grants and contracts .....	14,876	14,876	—
Investment income (net of \$546,000 for management and custodian fees) .....	11,902	9,842	—
Net gain on sale of securities and real property .....	8,505	—	8,505
Gifts, bequests and foundation grants .....	15,089	8,701	247
Additions to plant .....	4,054	—	—
Rentals, fees, commissions and other .....	3,019	2,983	36
Total revenue and other additions .....	172,297	151,254	8,788
<b>Expenditures and other deductions:</b>			
Research and educational expenditures .....	31,979	31,979	—
Administrative expenditures .....	11,014	11,014	—
Facilities services expenditures .....	1,172	1,172	—
Auxiliary activities expenditures .....	93,632	93,632	—
Acquisition of plant .....	3,797	—	—
Property use and retirements (Note 9) .....	650	—	—
Retirement of indebtedness .....	6	—	—
Interest on indebtedness .....	18	—	—
Total expenditures and other deductions .....	142,268	137,797	—
Excess of revenue and other additions over (under) expenditures and other deductions (Note 12) .....	30,029	13,457	8,788
<b>Transfers among funds—additions (deductions):</b>			
Mandatory principal and interest on notes ..	—	(24)	—
Nonmandatory for designated purposes, net (Note 13) .....	—	(9,755)	6,356
Total transfers among funds .....	—	(9,779)	6,356
Net increase (decrease) for the year ....	30,029	3,678	15,144
Returned to U.S. Treasury .....	—	—	—
Fund balances at beginning of year .....	168,861	26,610	103,009
Fund balances at end of year .....	\$198,890	\$ 30,288	\$118,153

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

**FEDERAL FUNDS**

<i>Plant funds</i>	<i>Total federal funds</i>	<i>Operating funds</i>	<i>Construction funds</i>	<i>Capital funds</i>	<i>Totals, all funds</i>	<i>Totals, 1983</i>
\$ —	\$168,223	\$163,723	\$ 4,500	\$ —	\$168,223	\$195,756
—	—	—	—	—	114,852	101,957
—	—	—	—	—	14,876	13,125
2,060	—	—	—	—	11,902	9,293
—	—	—	—	—	8,505	14,451
6,141	—	—	—	—	15,089	21,456
4,054	19,079	—	—	19,079	23,133	20,757
—	112	112	—	—	3,131	2,386
<u>12,255</u>	<u>187,414</u>	<u>163,835</u>	<u>4,500</u>	<u>19,079</u>	<u>359,711</u>	<u>379,181</u>
—	105,612	105,612	—	—	137,591	121,998
—	12,371	12,371	—	—	23,385	21,483
—	45,650	45,650	—	—	46,822	43,648
—	—	—	—	—	93,632	85,133
3,797	13,141	—	13,141	—	16,938	36,962
650	14,393	—	—	14,393	15,043	20,440
6	—	—	—	—	6	7
18	—	—	—	—	18	17
<u>4,471</u>	<u>191,167</u>	<u>163,633</u>	<u>13,141</u>	<u>14,393</u>	<u>333,435</u>	<u>329,688</u>
7,784	(3,753)	202	(8,641)	4,686	26,276	49,493
24	—	—	—	—	—	—
3,399	—	—	—	—	—	—
<u>3,423</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
11,207	(3,753)	202	(8,641)	4,686	26,276	49,493
—	(102)	(102)	—	—	(102)	(62)
39,242	199,673	75	18,068	181,530	368,534	319,103
<u>\$ 50,449</u>	<u>\$195,818</u>	<u>\$ 175</u>	<u>\$ 9,427</u>	<u>\$186,216</u>	<u>\$394,708</u>	<u>\$368,534</u>

SMITHSONIAN INSTITUTION  
Notes to Financial Statements

1. *Summary of significant accounting policies*

*Basis of presentation.* These financial statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts or the Woodrow Wilson International Center for Scholars, which were established by Congress within the Smithsonian Institution (the Institution) but are administered under separate boards of trustees. (See Note 2.)

The accounts of the federal funds have been prepared on the obligation basis of accounting, which basis is in accordance with accounting principles prescribed by the Comptroller General of the United States as set forth in the *Policy and Procedures Manual for Guidance of Federal Agencies*. The obligation basis of accounting differs in some respects from generally accepted accounting principles. Under this basis of accounting, commitments of the operating fund, such as purchase orders and contracts, are recognized as expenditures, and the related obligations are reported on the balance sheet even though goods and services have not been received. Such commitments aggregated \$33,045,000 at September 30, 1984. In addition, construction commitments amounted to \$29,552,000 at September 30, 1984.

The trust funds reflect the receipt and expenditure of funds obtained from private sources, federal grants and contracts, investment income and certain business activities related to the operations of the Institution. The federal funds reflect the receipt and expenditures of funds obtained from Congressional appropriations.

*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 funds control, accounting and reporting purposes into funds established according to their appropriation, 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:

*Trust current funds*, which include unrestricted and restricted resources, represent the portion of expendable funds that is available for support of Institution operations. Amounts restricted by the donor for specific purposes are segregated from other current funds.

*Trust 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 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.

*Trust plant funds* represent resources restricted for future plant acquisitions and funds expended for plant. Pledges for the construction of the Center for African, Near Eastern, and Asian Cultures are recorded as gifts in the plant fund in the period the pledge document is received.

*Federal operating funds* consist of separate subfund groups maintained for each appropriation—Salaries and Expenses appropriations, which are available for obligation in the current year only. Special Foreign Currency appropriations and Barro Colorado Island Trust Fund, for which unexpended funds from the current year can be carried forward and obligated in subsequent years.

*Federal construction funds* represent the portion of expendable funds that is available for building and facility construction, restoration, renovation, and repair. Separate subfund groups are maintained for each appropriation—Construction and Improvements, National Zoological Park, Restoration and Renovation of Buildings, Museum Support Center and the Center for African, Near Eastern, and Asian Cultures (Quadrangle).

*Federal capital funds* represent the amount of the investment of the United States Government in the net assets of the Institution acquired with federal funds and nonexpendable property transfers from Government agencies.

*Investments.* All gains and losses arising from the sale, collection or other disposition of investments and property 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. Gains and losses on the sale of investments are recognized using the specific identification method, whereby the cost of the specific security adjusted by any related discount or premium amortization is the basis for recognition of the gain or loss.

*Inventory.* Inventories are carried at the lower of cost or market. Cost is determined using the first-in, first-out (FIFO) method, retail cost method (for those inventories held for resale) 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.* The Institution acquires its collections, which include works of art, library books, photographic archives,

objects and specimens, through purchase or by donation. In accordance with policies generally followed by museums, no value is assigned to the collections on the statement of financial condition. Purchases for the collections are expensed currently.

*Property and equipment.* Capital improvements and equipment purchased with trust funds and utilized in income-producing activities are capitalized at cost and are depreciated on a straight-line basis over their estimated useful lives of 3 to 10 years. Equipment purchased with trust funds for use by non-income-producing activities is treated as a deduction of the current fund and a capitalized cost of the plant fund. Depreciation on equipment capitalized in the plant fund is recorded on a straight-line basis over the estimated useful life of 3 to 10 years (see Note 9). Equipment purchased with federal funds is recorded at cost and depreciated on a straight-line basis over a period of 10 years.

Real estate (land and buildings) purchased with trust funds is recorded 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. Costs of original building structures and major additions are depreciated over their estimated useful lives of 30 years. Costs of renovating, restoring and improving structures are depreciated over their estimated useful lives of 15 years (see Note 9).

Buildings and other structures, additions to buildings and fixed equipment purchased with federal funds are recorded at cost and depreciated on a straight-line basis over a period of 30 years. Costs of renovating, restoring and improving structures are depreciated over their useful lives of 15 years.

Certain lands occupied by the Institution's buildings were appropriated and reserved by Congress for that purpose and are not reflected in the accompanying financial statements. Property and nonexpendable equipment acquired through transfer from Government agencies are capitalized at the transfer price or at estimated amounts, taking into consideration their usefulness, condition, and market value.

*Government grants and contracts.* The Institution has a number of grants and contracts with the U.S. Government, which primarily provide for cost reimbursement to the Institution. Grant and contract revenue is recognized when billable or received in the trust funds.

*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.

*Annual leave unfunded.* The Institution's civil service employees earn annual leave in accordance with federal law and regulations. However, only the cost of leave taken as salaries is funded and recorded as an expense. The cost of unused annual leave at year-end is reflected in the accompanying financial statements as an asset and accrued liability in the federal funds.

## 2. *Related activities*

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 \$355,000 for the year ended September 30, 1984. Deposits held in custody for these organizations are \$3,029,000 as of September 30, 1984.

The following summarizes the approximate expenditures of these organizations for the fiscal year ended September 30, 1984 as reflected in their individual financial statements and which are not included in the accompanying financial statements of the Institution:

	(\$000s)
Visions Foundation, Inc. ....	\$ 128
Reading Is Fundamental, Inc. ....	\$6,400
Woodrow Wilson International Center for Scholars:	
Trust funds .....	\$4,100
Federal appropriations .....	\$2,568

### 3. *Cash on hand*

Cash on hand—federal funds represents the amount of imprest fund cash advanced by the U.S. Treasury to imprest fund cashiers for small purchasing purposes.

### 4. *Fund balances with U.S. Treasury*

The account represents fund balances on the books of the U.S. Treasury available for disbursement.

### 5. *Investments*

Investments are recorded at cost, if purchased, or estimated fair market value at date of acquisition, if acquired by gift. At September 30, 1984, investments were composed of the following:

	<i>Carrying value (\$000s)</i>	<i>Market value (\$000s)</i>
<b>Current funds:</b>		
Certificates of deposit .....	\$ 12,252	\$ 12,254
Commercial paper .....	3,949	3,940
U.S. Government and quasi-Government obligations	33,701	33,084
Common stock .....	28	9
Preferred stock .....	30	57
	49,960	49,344
<b>Endowment and similar funds:</b>		
Money market account .....	12,367	12,367
Deposit with U.S. Treasury .....	1,000	1,000
U.S. Government and quasi-Government obligations	10,028	10,063
Corporate bonds .....	5,377	5,786
Common stock .....	84,927	99,479
Preferred stock .....	3,015	2,282
	116,714	130,977

Plant funds:

U.S. Government and quasi-Government obligations	32	29
Common stock .....	100	—
	<u>132</u>	<u>29</u>
	<u>\$166,806</u>	<u>\$180,350</u>

Since October 1, 1982, the deposit with the U.S. Treasury has been invested in U.S. Government securities at a variable yield based on market interest rates.

Substantially all 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 \$203.92, 293,996 units were owned by endowment and 348,976 units were owned by quasi-endowment at September 30, 1984.

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

	(\$000s)			Market value per unit
	Market	Cost	Net change	
End of year .....	\$131,113	\$116,860	\$ 14,253	\$203.92
Beginning of year .....	\$130,684	\$101,672	29,012	210.27
Increase (decrease) in unrealized net gain for the year .....			(14,759)	—
Realized net gain for the year .....			8,505	—
Total realized and unrealized net gain (loss) for the year .....			\$ (6,254)	\$ (6.35)

6. *Endowment and similar funds*

Endowment and similar funds at September 30, 1984 are summarized as follows:

	(\$000s)
Endowment funds, income available for:	
Restricted purposes .....	\$ 48,031
Unrestricted purposes .....	3,953
	<u>51,984</u>
Quasi-endowment funds, principal and income available for:	
Restricted purposes .....	16,856
Unrestricted purposes .....	49,313
	<u>66,169</u>
Total endowment and similar funds .....	<u>\$118,153</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 dividends 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 1984 was \$6.74 per unit to the Restricted and Designated Purpose Endowment Funds and \$5.00 per unit to the Unrestricted General Purpose Endowment Funds; new units were purchased for the Unrestricted Endowment Funds with the \$1.74, the difference in the total return factor. The total return applied for 1984 was \$2,594,000 to the Restricted and Designated Purpose Endowment Funds and \$1,226,000 to the Unrestricted General Purpose Endowment Funds.

### 7. *Receivables*

Receivables at September 30, 1984 included the following:

	<u>(\$000s)</u>
<i>Trust funds</i>	
Accounts receivable, auxiliary activities; net of allowance for doubtful accounts of \$919,000 .....	\$ 9,136
Interfund receivables due from current funds:	
Endowment and similar funds .....	1,156
Plant funds .....	21,155
Interest and dividends receivable .....	2,036
Unbilled costs and fees from grants and contracts .....	942
Pledges .....	11,102
Other .....	55
	<u>45,582</u>
<i>Federal funds</i>	
Service fees and charges .....	220
Total, all funds .....	<u>\$45,802</u>

### 8. *Advance payments*

Advance payments represent advances made to Government agencies, educational institutions, firms and individuals for services to be rendered or property or materials to be furnished.

As of September 30, 1984, the Institution had advances outstanding to the U.S. Government of approximately \$10,807,000, principally for construction services to be received in the future. The Institution at that date also had advances outstanding to educational institutions amounting to approximately \$1,420,000, principally under the Special Foreign Currency Program.

### 9. Property and equipment

At September 30, 1984, property and equipment which have been capitalized (see Note 1) are comprised of the following:

	<u>(\$000s)</u>	<u>(\$000s)</u>
<i>Trust</i>		
<i>Current funds</i>		
Capital improvements .....	\$ 4,452	
Equipment .....	3,892	
Leasehold improvements .....	235	
Less accumulated depreciation and amortization .....	(3,832)	
	<u>4,747</u>	
<i>Endowment and similar funds</i>		
Land .....	239	
	<u>239</u>	
<i>Plant funds</i>		
Land and buildings .....	21,984	
Equipment .....	2,389	
Less accumulated depreciation .....	(6,125)	
	<u>18,248</u>	
Total, trust funds .....		\$ 23,234
<i>Federal</i>		
<i>Capital funds</i>		
Property .....	263,226	
Equipment .....	24,758	
Less accumulated depreciation .....	(103,017)	
Total, federal funds .....		<u>184,967</u>
Total, all funds .....		<u><u>\$208,201</u></u>

Depreciation and amortization expense for 1984 for trust funds' income-producing assets amounted to approximately \$957,000, which is included in auxiliary activities expenditures in the current funds. Depreciation of trust funds' nonincome-producing equipment and buildings for 1984 amounted to approximately \$650,000.

Depreciation expense reflected in expenditures of the federal capital funds for 1984 was \$11,437,000.

The balance of the plant fund at September 30, 1984 included \$32,201,000 of unexpended plant funds.

## 10. Appropriations

For the year ended September 30, 1984, the Institution was awarded \$12,500,000 for various construction projects. Funds appropriated in the prior year for Quadrangle construction were reduced in fiscal year 1984 by \$8,000,000.

## 11. Pension plan

The Institution has separate retirement plans for trust and federal employees. Under the trust fund's 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, 1984, was \$3,195,000. It is the policy of the Institution to fund plan costs accrued currently. There are no unfunded prior service costs under the plan.

The federal employees of the Institution are covered by the Civil Service Retirement Program. Under this program, the Institution withholds from the gross pay of each federal employee and remits to the Civil Service Retirement and Disability Fund (the Fund) the amounts specified by such program. The Institution contributes 7% of basic annual salary to the Fund. The cost of the plan for the year ended September 30, 1984, was approximately \$5,900,000.

## 12. Excess expenditures and other deductions

The net excess of expenditures and other deductions over revenue and other additions disclosed for federal construction funds in the Statement of the Activity for the year ended September 30, 1984 arose because certain appropriations, having been recorded as revenue and other additions in prior years and carried forward as fund balance, were expended during the year. Additionally, funds appropriated in the prior year were reduced in fiscal year 1984 (see Note 10).

## 13. Nonmandatory transfers for designated purposes

The following transfers among trust funds were made for the year ended September 30, 1984 in thousands of dollars:

	<i>Current funds</i>		<i>Endow- ment and similar funds</i>	<i>Plant funds</i>
	<i>Unre- stricted</i>	<i>Restricted</i>		
Portion of investment yield appropriated (Note 6) .....	\$(1,466)	\$(1,353)	\$2,819	\$ —
Plant acquisitions .....	(3,400)	—	—	3,400
Income added to endowment principal .....	—	(190)	190	—
Appropriated as quasi-endowment	(3,313)	(33)	3,347	(1)
Total .....	<u>\$(8,179)</u>	<u>\$(1,576)</u>	<u>\$6,356</u>	<u>\$3,399</u>

#### 14. *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, which was immaterial for the Institution for 1984.

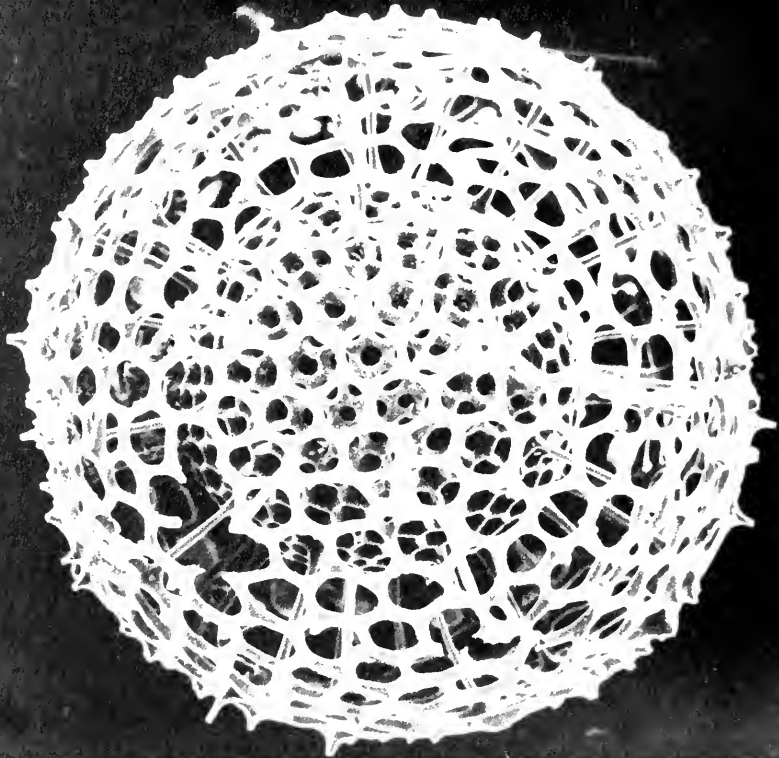
It is the opinion of the Institution that it is also exempt from taxation as an instrumentality of the United States as defined in Section 501(c)(1) of the Code. Organizations described in that section are exempt from all income taxation. The Institution has not as yet formally sought such dual status.



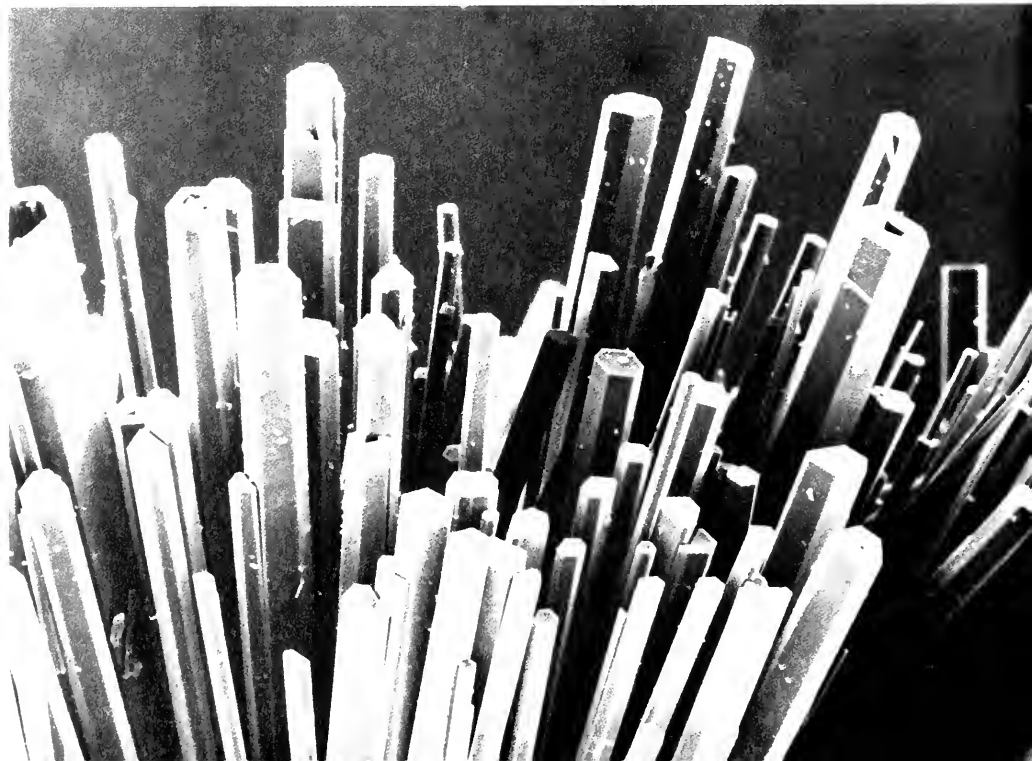
# Explore Your Heritage at the Smithsonian!



The Office of Public Affairs produced a new brochure, *Exploring Your Heritage*, featuring areas of the Smithsonian Institution of particular significance to members of the black community. The brochure was the first effort in a project aimed at encouraging visits to the Smithsonian by members of minority communities.



*Top:* A two-layered geodesic glass dome supports the body of a radiolarian, a kind of plankton. The animal's amoeboid body extends through the holes to communicate with the outside environment. The geodesic structure is an excellent means of distributing strength through equidistant trusses. *Bottom:* This radial spray of bladeliike crystals belongs to the mineral hemimorphite, zinc silicate. Both of these were in the National Museum of Natural History's exhibition *Exploring Microspace*, March 16–July 15, 1984.



## SCIENCE

DAVID CHALINOR,  
ASSISTANT SECRETARY FOR SCIENCE

### *National Air and Space Museum*

The National Air and Space Museum (NASM) remains the most popular museum in the world. On May 24 director Walter J. Boyne welcomed the 75 millionth visitor—a thirteen-year-old student from Chicago. This spring the museum enjoyed record-breaking days of more than 100,000 visitors. Attendance this year substantially exceeded that of any previous year since the opening.

Under the leadership of a new associate director for research, NASM staff members continued their efforts to establish the museum as the preeminent center for research in the history of air and space technology and geophysical science. The first *National Air and Space Museum Research Report*, to be published annually beginning in the fall of 1984, highlights the results of staff research and describes the collections, facilities, and resources available to scholars. The *Research Report* will also promote interest in NASM fellowships, chairs, and research programs.

A new committee structure will help to strengthen the NASM research effort. Staff committees assist in planning and implementing long-range research programs, solicit proposals for new publications and research projects, develop ideas for new symposia and teaching programs, advise on visiting or contract appointments, and recommend courses of action to the director. An external Research Advisory Committee, composed of leading figures in various disciplines appropriate to NASM, will advise and assist the museum in developing new programs in history and science.

Several major historical research programs are under way. Work

is progressing on a multivolume *Smithsonian History of Aviation*. Scheduled to appear serially between 1986 and 1989, the volumes will provide a comprehensive history of flight from antiquity to the present. The series will consider not only the development of aerospace technology but the role of flight in shaping life in the twentieth century. As a part of this effort, major archival collection and bibliographic projects are being undertaken. The program has also become a focal point for attracting talented interns, fellows, and visiting scholars to the museum.

The Space Telescope History Project, a joint undertaking of the museum and Johns Hopkins University, will result in a published history of the ambitious orbital astronomical observatory of the National Aeronautics and Space Administration (NASA). The book, to appear the year the Space Telescope is launched, will explore political, technological, scientific, and managerial aspects of this multi-billion dollar program.

The Space Telescope History Project also includes an oral-history effort involving the collection of more than 100 transcribed taped interviews. This is an extension of the Space Astronomy Oral History Program, now in its third year. A catalogue of transcriptions completed to date is available.

Yet another team project will study the origins of the NASA program to orbit a large space station. This effort will not only result in a book but also in the identification and preservation of papers documenting the development of space exploration.

Staff members of the Space Science and Exploration Department and Aeronautics Department are compiling a bibliography of secondary materials on the history of air and space. This will be a carefully selected, heavily annotated listing of the most significant scholarly works in the field.

In an attempt to extend the utility of museum resources, steps are being taken to explore the opportunities for interaction with major institutions of higher learning in the United States and abroad. This year a successful cooperative course entitled "Twentieth Century Technology" was conducted by museum staff in conjunction with New York University. Based on this initial effort, a pilot course in the history of science and technology, using the museum as a learning resource, is being designed and will be offered by New York and Oxford universities in 1985. Discussions with the University of Cambridge are leading to new areas of cooperation, including possible NASM/Cambridge summer projects in 1985.

In geophysical science, the museum's Center for Earth and Planetary Studies continued to advance scientific research in planetary and terrestrial remote sensing. Orbital remote-sensing research concentrated on digital image-processing methods for analysis of diverse types of data, while terrestrial remote-sensing research concentrated on the desert fringe areas in western Africa and on the inland delta of the Niger River in Mali. The center also continued terrestrial research on interpreting thermal infrared data from the Advanced Very High Resolution Radiometer instrument on the Nimbus satellites, comparing these data with more conventional Landsat images. Under continued support by NASA's Planetary Geology program, research into the nature and origin of structural features on the surface of Mars was performed during 1984.

Research at the museum was reflected not only in the seventy articles written by staff members, but in the museum's active and varied publishing program. Tom Crouch's *The Eagle Aloft: Two Centuries of the Balloon in America* received the 1984 Aviation/Space Writers Association national award for best nonfiction book and was widely acclaimed as the definitive work on the subject. *Vengeance Weapon 2: The V-2 Guided Missile*, by Gregory Kennedy, and an article by Walter Boyne, "Boundary Layer: Macho Masochism," received awards from the Aviation/Space Writers Mideast Region. *Black Wings: The American Black in Aviation*, by Von Hardesty and Dominick Pisano, and the exhibition booklet *Milestones of Flight* won awards from the Society for Technical Communication, Washington chapter.

The variety of NASM publications is reflected in the nine new titles issued this year. The *de Havilland DH-4: From Flaming Coffin to Living Legend*, by Walter Boyne, is the seventh book in the Famous Aircraft of the National Air and Space Museum series. *United States Women in Aviation, 1920-1929*, by Kathleen Brooks-Pazmany, became the second in the continuing series on U.S. women in aviation. *Combat Flying Clothing—Army Air Forces Clothing during World War II*, by C. G. Sweeting, and *Winged Wonders: The Story of the Flying Wings*, by E. T. Wooldrige, were the first comprehensive works published on those subjects in the United States.

*At Home in the Sky: The Aviation Art of Frank Wootton*—the first art exhibition catalogue to be published by the museum—and a style manual for NASM correspondence, publications, and exhibition scripts added new dimensions to the publications program.



The fifteenth anniversary of man's first landing on the moon was celebrated at the National Air and Space Museum with a Lunar Landing Party on the evening of July 20. More than 4,000 visitors enjoyed highlights tours, IMAX films, and a selection of lunar "touchables."



Golden Age of Flight, a major new gallery at the National Air and Space Museum, is devoted to aviation between the two world wars. Two of the five airplanes displayed in the gallery include a reproduction of the Gee Bee Z (below), a distinctive aircraft of radical design that epitomized 1930s air racing, and the Beechcraft *Staggerwing* (top), a luxury private and business aircraft.

NASM's quarterly Special Presentations Calendar was expanded to include broader information on museum programs in a monthly format. NASM also published its first theater booklet, highlighting in photos the spectacular footage from the IMAX films and describing the films and the IMAX process. In addition, five NASM books were reprinted this year. Planning is also under way for a new series of monographs documenting the origins, historical and technological context, and physical characteristics of the space artifacts in the NASM collection.

Important steps were taken to strengthen the museum's archival and artifact collections. Staff members and interns inventoried thirty-eight separate reference and archival collections on space science, using the museum's data processing system as a cataloging aid. Finding aids were also prepared for two significant large collections, the papers of Andrew G. Halley, space law and space travel society pioneer; and the papers of the American Astronautical Society. In addition, NASM arranged to copy and electronically store portions of the Wernher von Braun papers.

The museum remains a pioneer in the development of new archival technologies. The NASM System for Digital Recovery (SDR) will advance the art of archiving high-quality reproductions of manuscripts, photographs, and printed documents. The SDR combines a digital camera, a computer, a digital videodisc, a printer, and software to store, retrieve, and print *all* types of historical documents. The system also permits *automatic indexing* of printed material. Such new technologies will extend the accessibility and utility of the NASM archives and enable staff members to better serve the public.

NASM produced a second laser videodisc in 1984. Archival Videodisc 2, containing 100,000 photographs of aerospace personalities and events, airships, balloons, commercial aircraft, air meets, trophies, military aviation, aerospace museums, and aeronautical communications supplements the first videodisc, which contained aircraft photographs. Archival Videodisc 3, containing U.S. Air Force World War II and prewar photographs, is near completion. Duplicate discs are available at low cost to other museums, educational institutions, governmental agencies, and the public.

Twelve exhibitions were presented this year. A new gallery, Golden Age of Flight, tells the story of the pilots, engineers, industrialists, and adventurers who contributed to the phenomenal growth of aviation during the period 1919-39. As an adjunct to this exhibition, the museum sponsored an art competition.



Four major galleries were updated in 1984. *Dr. Franklin's Window: American Witnesses to the Birth of Flight*, a new introductory unit for the Balloons and Airships gallery, was opened as part of the NASM celebration of the 200th anniversary of the first flight in the United States. A Dassault Falcon is the centerpiece of an addition to the Hall of Air Transportation, describing development of the air express industry. An addition to the Apollo to the Moon gallery details the crucial space-age decisions made by *The Administrators of NASA*. *At Work in Space*, a new unit in the Space Hall display, highlights the inflight coveralls of astronauts Guion S. Bluford and Sally Ride, donated by America's first black and first woman astronauts in space, respectively.

Smaller exhibitions this year commemorated the aerospace contributions of German-Americans, on the 300th anniversary of German immigration to America, and the first manned crossing of the Pacific by the balloon *Double Eagle V*. The Berlin Airlift was the subject of a special exhibition celebrating the centennial of the birth of President Harry Truman.

Major art exhibitions included the works of Robert McCall and John Amendola. In the McCall exhibition were many of that artist's creative visions of future cities in space, space stamp designs, and several large-scale murals. The John Amendola show featured the commissioned art for many of the NASM book covers.

Two new presentations were prepared by the NASM staff in 1984. *The Oldest Dream: A Celebration of Flight*, a multi-media show using film, slides, and numerous special effects, opened in November 1983 in the Albert Einstein Sky Theater. *Treasures of the National Air and Space Museum*, a short film on NASM, is being shown at the California Museum of Science and Industry in Los Angeles and on United Airlines flights.

The growth and preservation of the NASM collection remains at the heart of the museum's program. The first complete restoration of a space artifact, the Fairchild ATS-6 spacecraft, is under way at the Paul E. Garber Preservation, Restoration and Storage Facility. Craftsmen there also completed restoration of the five aircraft for the Golden Age of Flight gallery.

Among the aircraft added to the collections this year were the Quickie, a home-built aircraft; the Beck-Mahoney *Sorceress*, a racing biplane; HIMAT, a NASA research vehicle; the *Spirit of Texas*, the first helicopter to fly around the world; a Republic RC-3 Seabee amphibian; the MacCready *Solar Challenger*, which made the first solar-powered flight in history; the Hispano HA-200 Cairo jet

trainer, acquired from the Egyptian government; and a Grumman Goose, a classic amphibian.

Some of the items added to the already impressive NASM collection of spacecraft and space instruments were the Baker-Nunn satellite tracking camera used to photograph the first man-made satellites in 1957 and 1958; the Skylab X-ray telescope, one of two major imaging instruments aboard Skylab; and a test model of the Pioneer Venus space probe.

NASM continued to share its collections through loans to other institutions. Objects were lent to the California Museum of Science and Industry in time for their special exhibitions during the 1984 Summer Olympics. NASM also participated in the *Treasures from the Smithsonian* exhibition in Edinburgh. Three STRES (Smithsonian Traveling Exhibition Service) exhibitions include objects from the NASM collection. In addition, the STRES *Black Wings* exhibition was expanded from two to three traveling units.

In a ceremony held beneath the Wright Flyer in the Milestones of Flight gallery, director Walter Boyne accepted one of the original propellers used on the first heavier-than-air powered flight from Wilkinson Wright, a grandnephew of the Wright brothers. World War I ace Ray Brooks reminisced about flying the SPAD XIII at a ceremony at the Garber Facility, where the SPAD XIII is being restored. In a ceremony on May 18, the Viking Lander on Mars was transferred from NASA into the NASM collection, making NASM the first truly interplanetary museum.

The popular Garber Facility open house held in April attracted 7,500 visitors. A Lunar Landing Party open house held at NASM on the evening of July 20, 1984, drew more than 4,000 people to celebrate the fifteenth anniversary of the first landing on the Moon.

A new position of associate director for external affairs was established to oversee the museum's publications, education programs, theater operations, and public affairs programs, and to increase the museum's ties to the academic and business communities.

The Samuel P. Langley Theater continued to be one of the most popular attractions in Washington, D.C. Since opening day, July 1, 1976, the theater has attracted audiences totaling well over thirteen million. The award-winning *To Fly!*, the theater's first IMAX movie, remains its most popular attraction, having drawn audiences of more than three-quarters of a million this year alone and more than eight million since its first showing. Two evening IMAX



The National Air and Space Museum's videodisc project provides scholars and researchers access to the museum's vast collection of archival photographs—one million in all. Ten discs are planned, each containing 100,000 photographs of the aircraft, spacecraft, people, and artifacts associated with the history and development of aviation and space flight.

festivals, featuring *Volcano/Behold Hawaii* and *To Fly!, Flyers*, and *Living Planet*, were well attended, as were the annual aviation and space fiction film series.

Financial sponsorship was obtained this year for two new IMAX films to be shown in the Langley Theater. NASM will receive a share of the income from the rental of these films, which will be seen in theaters worldwide. *The Dream Is Alive*, sponsored by Lockheed Corporation and the Smithsonian Institution, is the first large-format film to be shot on location in space. Spectacular film footage was obtained by the astronauts using the IMAX camera on the Space Shuttle missions in April and August 1984. Additional filming is scheduled for future Space Shuttle missions. *The Dream Is Alive* is expected to premiere at NASM in the summer of 1985.

The second new IMAX film, *On the Wing*, sponsored by Johnson Wax, will explore man's fascination with natural and mechanical flight. Innovative motion picture techniques will be featured, including the imaginative use of fiber optics and computer graphics. This film is expected to open at the museum in the spring of 1986.

Dr. Paul MacCready, designer of the Gossamer series of advanced flying machines, has assembled a team of specialists in aerodynamics, mechanical engineering, and paleobiology to study the feasibility of building, for NASM, a full-scale working replica of *Quetzalcoatlus northropi*, believed to be the world's largest flying creature. The dinosaur replica, if built, will be featured in the film *On the Wing*.

The usual heavy schedule of lectures and symposia continued in the Langley Theater in 1984. Lt. Gen. James A. Abrahamson, manager of NASA's Space Shuttle Program, offered the seventh annual Wernher von Braun Memorial Lecture. The annual Lindbergh lecture featured Jeffrey Quill, whose test flying played a prominent role in the evolution of the Spitfire. Nine GE-sponsored aviation lectures were well attended. Special presentations in the Albert Einstein Sky Theater included seven lectures in the annual "Exploring Space with Astronomers" series, the twice-weekly "Noontime with the Stars" talks, and the twelve monthly sky lectures.

The three major symposia sponsored by NASM this year offered the public an opportunity to hear presentations by the foremost contributors to aerospace history and the geophysical sciences. "The Wright Flyer: An Engineering Perspective," commemorated the eightieth anniversary of the invention of the airplane and underscored the technical achievements embodied in the 1903

Wright Flyer. Papers offered by the five participating engineers will be published in the Smithsonian Studies in Air and Space series.

"The Apollo Legacy," held on the fifteenth anniversary of the Apollo 11 lunar landing, brought together five well-known scientists and four astronauts to review the scientific impact of the Apollo missions.

"Vertical Flight: The Age of the Helicopter," a symposium held in conjunction with the Fortieth Annual Forum of the American Helicopter Society, featured presentations on the history and future of vertical flight. Selected papers, edited by Walter Boyne and Donald Lopez, were published in conjunction with the symposium.

The museum docents maintained a busy schedule, serving more than 39,000 visitors this year. Another 24,000 visitors toured the Garber Facility. Tours for school children reached 9,000 students.

President Reagan helped celebrate NASA's twenty-fifth anniversary at NASM. The President also delivered the keynote speech at the annual dinner honoring General James Doolittle, held at the museum. Vice-President Bush and the Premier of Bermuda, John Swan, were honored at a dinner in the Flight and the Arts gallery. The Vice-President also introduced the film *Air Force One: The Planes and the Presidents* at a special premiere at the museum. NASM was chosen as the location for a reception in honor of the King and Queen of Nepal when they visited the Smithsonian.

Major steps were taken toward the development of a new NASM facility at Dulles International Airport to house and display air and space craft that cannot be accommodated at NASM or the Garber Facility and to serve as a location for museum functions. The Federal Aviation Administration earmarked approximately 100 acres of land at Dulles for the proposed facility, and bills were introduced in both houses of Congress to authorize its construction. On April 25, a B-17G Flying Fortress flew into the Dulles site, and was donated to the museum by its owner and pilot in a special ceremony.

Plans are under way for NASM to be the control center for a nonstop, nonrefueled, around-the-world flight attempt of the *Voyager* aircraft designed by Burt Rutan. NASM is also exploring the possibility of being the control center for a nonstop, around-the-world balloon flight by the *Endeavor*, which would begin and end in Australia.

The success of NASM is based on a blending of the new with the old—a creative use of modern technology and innovative manage-

ment strategies to solve the traditional museum problems of collection, preservation, and exhibition. In charting the future of the museum as a research institution, we hope to develop a similar creative approach that will make the priceless resources of our collection available to the scholarly community.

## *National Museum of Natural History*

### EXHIBITIONS

*Exploring Microspace* (March 16–July 15), an exhibition that traced the evolution of the microscope from the seventeenth century to the electronic age, and displayed video and photomural images of the unseen microscopic world, was one of five immensely popular Thomas M. Evans Gallery shows that helped bring a record six million visitors to the National Museum of Natural History (NMNH) in 1983–84. Live demonstrations of a scanning electron microscope and a state-of-the-art optical microscope, plugged into TV monitors, made it possible for the public to see museum science in action. Organized by curators Drs. Frederick M. Bayer, Richard H. Benson, and Richard S. Boardman, with assistance from the Armed Forces Medical Museum, Dr. Cecil Fox of the National Institutes of Health, the James Smithsonian Society, and the Smithsonian Traveling Exhibition Services (SITES), the exhibition is now on a two-year tour of museums throughout the United States.

*The Art of Cameroon* (February 1–June 17), a SITES-organized exhibition, surveyed the significance and splendor of one of Africa's major art traditions. *Ban Chiang: Discovery of a Lost Bronze Age* (November 2–January 31), organized jointly by SITES and the University of Pennsylvania, exhibited archeological discoveries that have changed the prevailing view of Southeast Asia's role in the development of civilization. *The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections* (November 9–January 1) was a SITES exhibition of one of the largest and most important Judaic collections in the world. Almost 2,000 people a day saw the exhibition weekdays and as many as 3,000 a day on weekends and holidays. A ticketing system was set up for the first time in the museum's history to prevent long lines from forming. *Treasures from the Shanghai Museum: 6000 Years of*

*Chinese Art* (August 11–November 30), the most comprehensive major Chinese art exhibition ever to tour the United States, displayed 232 masterpieces from the collections of one of China's leading museums. This exhibition was organized by the Asia Art Museum of San Francisco in cooperation with the Shanghai Museum.

Rotunda Gallery exhibitions in 1983–84 featured: *Roger Tory Peterson at the Smithsonian* (April 27–September 3), a comprehensive retrospective of Peterson's bird art, marking the fiftieth anniversary of his influential book *A Field Guide to the Birds* (The exhibition was organized by curator Dr. Richard L. Zusi); *Drawings of African Mammals* (November 14–January 2) by African naturalist Jonathan Kingdon; photographs of *The Nazca Lines* by Marilyn Bridges (January 6–April 16); and *Thirty Years of Scientific Illustrations Drawn in the Museum of Natural History* (September 7–November 4), a retrospective of museum scientific illustrator Carolyn Barlett Gast's drawings of fossils, insects, birds, and invertebrates.

*Photographic Portraits of North American Indians: A Recreation of the First Photographic Exhibition in the Smithsonian Institution* (May 28–December 31) consisted of some 259 portraits of Native Americans, most of them members of official delegations that visited Washington, D.C., from 1857 to 1869, from the collections of the museum's National Anthropological Archives. The exhibition was organized by the archives' Paula Fleming. For the celebration of the 100th anniversary of the National Gem Collection in 1984, curator John S. White placed on exhibition three spectacular new gifts—the 182-carat "Star of Bombay" sapphire, a bequest of film actress Mary Pickford; the 318-carat "Dark Jubilee" opal, donated by the Zale Corporation; and a 168-carat emerald pendant, a bequest of Anna Chase Mackay, a former Metropolitan Opera soprano.

In late 1983 the museum opened *Fossils Galore: Life in the Early Seas*, a new highlight in its fossil exhibit complex. *Fossils Galore* marks the beginning of the Paleozoic era, 600 million years ago, when the first hard-shelled life appeared, followed by an astonishing increase in the number and variety of fossilized animals. It includes a display of the rare 530-million-year-old fossilized soft-bodied animals of the Burgess Shale. One of the Smithsonian's greatest scientific finds, these fossils were discovered at a site in British Columbia in 1910 by the Institution's fourth secretary, (1896–1927), geologist Charles D. Walcott. This marks the first

time that a large number of these curious specimens, which provide the best information we have on soft-bodied life in the early Cambrian seas, have ever been exhibited. Paleobiology collections manager Frederick J. Collier organized the exhibition.

#### OFFICE OF EDUCATION

The premiere performance of "The Beadle of Prague," a dramatic cantata commissioned in association with the exhibition *The Precious Legacy*, was one of the many special presentations that enlivened and added educational strength to Evans Gallery exhibitions in 1983-84. A four-day festival, featuring dance performances, film presentations, lectures, chefs' demonstrations of Chinese cuisine, and programs on calligraphy, kitemaking, paper folding, brush paintings, and other traditional Chinese arts, was presented to help late summer visitors appreciate the exhibition *Treasures from Shanghai*. Fifty-six special docents were trained to give group tours for Evans Gallery exhibitions, serving more than 13,000 persons. Teachers' workshops were conducted to acquaint instructors in area schools with the content of the exhibitions *Exploring Microspace* and *Treasures from Shanghai*.

"Wandering Birds in the Southern Ocean," by Dr. George Watson; "Snorkling and Science in the Sea of Cortez," by Dr. Mark Littler; "Native Writings of the Massachusetts Indians," by Dr. Ives Goddard; "Fossil Birds and the Polynesian Conquest of Nature in the Pacific," by Dr. Storrs Olson; "The Elusive Mud Dragon and His Kin," by Dr. Robert Higgins; and "Exploring Microspace," by Dr. Richard Benson were among the eleven slide-illustrated lectures by museum curators on their research and field work presented during 1983-84 in the regular free Friday Film and Lecture Series. A special holiday film festival featuring outstanding natural history films was presented during the Christmas-New Year week.

The Discovery Room, which celebrated its tenth anniversary with a week-long program of special events, was visited by more than 100,000 persons in family and school groups during the year. The Naturalist Center increased its hours, starting in April, doubling its summer visitorship, and is now open seven days a week. Workshops were held to inform high school teachers of the center's resources, significantly increasing student usage.

Two-hundred-and-eighty-one docents participated in the regular school and public programs, providing services to 165,000 persons.



New evidence that the hand of man may have had a greater responsibility than is generally assumed for many extinctions of island plant and animal communities in the past 10,000 years was published in 1984 by Dr. Storrs Olson and Dr. David Steadman. With colleague Dr. Gregory Pregill, of the San Diego Museum of Natural History, they reported in the *Proceedings of the National Academy of Sciences* on their fossil finds on Antigua, Lesser Antilles, where they discovered a mass of accumulated fossils in a sediment-packed limestone fissure. Radiocarbon dating brackets this material into a period between 4,300 years ago, when the island's first human settlers arrived, and 2,560 years ago. Analysis of the fossil sample showed 33 percent of the species to be extinct on Antigua—including lizards, snakes, birds, bats, and rodents—which if extrapolated to the total original biota would indicate that man may have eradicated one-third of the island's fauna.

Steadman, Pregill, and Olson concluded: "If Antigua is at all representative, then the endemic or localized distributions that characterize many insular species may actually be more a consequence of recent habitat degradation than such factors as niche partitioning and competition, which are now popularly assumed to regulate the kind and even number of species on islands under natural conditions."

Many months of work by ichthyologist Dr. Victor Springer culminated in early 1984 in the Smithsonian Institution Press publication of the hand-colored plates of one of the nineteenth century's most outstanding illustrated scientific classics—a monumental atlas of Indo-Pacific fishes that is the masterwork of the great Dutch ichthyologist Pieter Bleeker. *Atlas Ichtyologique des Indes Orientales Néerlandaises, Plates for Tomes XI-XIV (Atlas of Fishes of the Dutch East Indies)* contains 150 color plates of Indo-Pacific fish fauna—including sharks, rays, blennies, gobies, siganids, and jacks—the richest and most magnificent in the world. All profits from the sale of this work go into the Leonard P. Schultz Fund, managed by Springer and used for research, collection and purchase of fish specimens, and exploration and publications relating to fish.

The museum's Marine Mammal Salvage Program, designed to recover data and specimens of marine mammals on the U.S. Atlantic Coast that would otherwise be lost to science, has been in operation since 1972, and is yielding an enormous amount of data bearing on migratory patterns, size, and distribution of populations,

and eating and breeding habits. After recovering an average of 50 to 100 or more stranded animals a year, with a high of 200 in 1977, the stranding frequency fell into a puzzling lull from 1980 through 1983 with only five to ten recoveries each of these years. In September 1984 the lull ended with a sudden influx of strandings reported on the coast of Virginia and North Carolina: an Antillean beaked whale, only the fortieth ever reported in the scientific literature, stranded at Bogue Banks, N.C.; three Risso's dolphins came ashore on Ocracoke Island, N.C.; and seven bottle-nosed dolphins stranded in the Virginia Beach area. Program director Dr. James Mead tentatively hypothesizes that the fluctuation in strandings can be explained by changes in the distribution of marine mammals relative to onshore currents. Data on these strandings were reported in the department's *U.S. Marine Mammal Stranding Report*, issued quarterly to the scientific community.

Gigantism and dwarfism provide fascinating opportunities for the study of evolutionary patterns and mechanisms. Among the three squirrels, "giants" occur in three different lineages on three continents, and pygmy squirrels have similarly evolved independently on three different continents. Mammalogist Dr. Richard Thorington is attempting to understand what factors have caused these squirrels to be large or small and how these size changes are accomplished. Among his 1983-84 case studies were field reports on the ecology, behavior, and anatomy of one of the largest tree squirrels in the world, the Malabar squirrel of India, which weighs four to five pounds, and the fox squirrels of the southeastern United States, the largest tree squirrels in North America.

As part of his overall study, Thorington is looking into the origin and significance of intriguing anatomical parallels between both the pygmy and giant arboreal squirrels and primates. The objective is to study cases in which evolution has repeatedly followed similar paths, and to examine the developmental and ecological constraints that may have led to such parallel evolution. Both the smallest monkeys and smallest tree squirrels have some behavioral and biological similarities. Giant tree squirrels would seem to have little in common with the giant ceboid monkeys of South America—the spider and howling monkeys—yet they have parallel specializations of the shoulder musculature, which suggests that allometry (factors controlling the relative growth of a body part in proportion to the entire body) places similar constraints on large squirrels and large monkeys.



Peter J. Harmatuk (right) shows Dr. Richard Fiske, director of the National Museum of Natural History, some fossil shark teeth he collected at the Lee Creek Mine in North Carolina. (Photograph by Doc Dougherty)

Because so little is known about the biology, natural relationships, and distributions of a large percentage of the insect life in South America's vast tropical rain forests, National Museum of Natural History entomologists go there as often as possible to collect specimens. In January, February, and March 1984, they joined scientists from throughout the world in the first detailed multidisciplinary biological investigation of Cerro de la Neblina, one of the largest and highest of the unexplored mesas (tepuis) in southern Venezuela's vast "Lost World" wilderness region. Rising 7,500 feet to a forested plateau and then onward to a 10,000-foot-high cloud-covered peak, Neblina, the "Mountain of the Mists," is a remnant of a vast eroded tableland that covered the region hundreds of millions of years ago. High vertical cliffs, deep canyons, and steep rock slopes isolate the mountain's high plateau and peak from the rain forests that surround its base, creating an "island in the sky" environment where flora and fauna have evolved that do not exist anywhere else on earth.

Airplane and helicopter support was provided for the expedition by the sponsoring Venezuelan organization, the Foundation for the Development of Physical, Mathematical and Natural Sciences. Expedition coordinator and leader Dr. Charles Brewer-Carias arranged to fly groups of scientists, including the Smithsonian's Donald Davis, Robert Robbins, Oliver Flint, Jerry Louton, and Vicki Funk, and U.S. Fish and Wildlife scientists Roy McDiarmid and Mercedes Foster, to San Carlos, a tiny military settlement on the northern reaches of the Rio Negro, one of the major tributaries of the Amazon. Loading their equipment into dugout canoes powered by outboard motors, they were taken downriver to another outpost, from which they were flown by helicopter across fifty miles of unbroken, uninhabited rain forest to a base camp at the base of the tepui.

From this site, collecting forays were made by scientists into Neblina's lowland forests and major river canyon. Davis, Louton, Funk, McDiarmid, and Foster were among those taken by helicopter up to the wind- and rain-swept plateau where they set up temporary camps and collected insects, plants, animals, and birds in the scrub- and forest-covered boggy terrain. The plateau proved as taxonomically enlightening as the scientists had hoped; a high percentage of the plants and insects have structural peculiarities reflecting their genetic isolation and subsequent changes in form

resulting from their isolated habitat. Tens of thousands of insects were collected and are now being sorted and prepared for study. The participation of U.S. scientists in the expedition was sponsored by the Smithsonian Institution Scholarly Research Fund and the National Science Foundation. Important assistance was provided by the Institute of Tropical Zoology, Central University of Venezuela, Caracas; the Institute of Agricultural Zoology, Central University of Venezuela, Maracay; and the Venezuelan National Herbarium. The exploration of Neblina is expected to continue into 1985.

At Tambopata, Peru, a wildlife reserve in the Amazon basin lying within what many biologists believe is the richest forest region in the world, Dr. Terry L. Erwin is studying the insect life of the tropical forest canopy—one of the last unexplored biotic frontiers on earth. In 1983–84 he completed four seasonal surveys in the preserve, using an insecticidal fog to collect a million insect specimens from the treetops of five different forest types within the reserve. Erwin's preliminary data show that 87 percent of the tropical-canopy insects are restricted to a specific forest type, and that about 13 percent are confined to mostly one species of tree, a finding that he believes has practical implications for the preservation of tropical wildlife. He estimates that there are as many as 200 types of tropical forests, and to preserve the incredible diversity of insect life they hold (possibly as many as 50 million species), as many forest types as possible should be represented when reserves are established—not just ones that make convenient picnic areas for tourists. Working with Dr. Erwin, to help him document, gain an understanding, and preserve the flora and fauna of this rich region are scientists from the Smithsonian and other major institutions in the United States, along with students and professors at the Peruvian universities of La Molina and San Marcos in Lima and from the universities at Callatena and Cuzco.

Among the other entomological collecting activities in South America in 1983–84: coleopterist Dr. Paul J. Spangler brought back more than 25,000 insects—including numerous new species—from the Takutu Mountains of Guyana, an expedition sponsored by EARTHWATCH; Dr. Johnathan Coddington collected arachnids and myriapods in Venezuela and Trinidad; and Dr. Wayne Mathis made a major collection of shore flies from Peru, Colombia, and Belize.

Capitalizing on opportunities to make large documented collections of fossils is an important priority for National Museum of Natural History paleobiologists. At a huge open-pit mine on the south bank of the Pamlico River, near Aurora, North Carolina, seventeen years of collecting work led by the museum has established the site as one of the richest known fossil deposits in the world, and made possible the greatest single advancement ever in knowledge of middle Atlantic Coastal Plain paleontology.

The first of three large volumes of research papers on the site was published in September 1983 by the Smithsonian Institution Press. *Geology and Paleontology of Lee Creek Mine, North Carolina* (Smithsonian Contributions to Paleobiology, No. 53), edited by Dr. Clayton E. Ray, contains fourteen papers on Lee Creek geology and paleontology, and a biography by Dr. Frank C. Whitmore, Jr., of the late Dr. Remington E. Kellogg, a marine mammal authority and former director of the Smithsonian's U.S. National Museum, to whom the three volumes are to be dedicated. It was Kellogg who initiated Smithsonian studies at the Texasgulf-owned mine in 1967 after he received a small collection of vertebrate fossils from geologist Jack E. McClellan.

Scientists have studied curious Middle Atlantic Coast vertebrate fossils since colonial times, but before the Lee Creek Mine existed there was no way to learn about deposits in the critically important Miocene and Pliocene Yorktown and Pungo Formations in North Carolina, except through limited information that could be gleaned by drilling. Aware that the Lee Creek Mine presented a research opportunity that must be exploited, Kellogg enlisted colleagues at the Smithsonian, the U.S. Geological Survey, and other scientific institutions, asking them to look into Lee Creek material pertaining to their specialties and to collect at the site. The result was that a trickle of fossils soon became a torrent; the mine to date has yielded one of the largest fossil sea bird faunas in the world; a superb collection of true seals, as well as an abundance of new and different species of whales; and a remarkable assemblage of sharks and bony fish, extensive enough to be considered the essential reference for reconstructing the history and development of the modern Western Atlantic fish fauna.

Although no small amount of this material was gathered by scientists, the single most important and productive collector at the Lee Creek Mine for the Smithsonian over the past seventeen

years has been Peter J. Harmatuk. For years, every weekend or day off, Harmatuk drove the thirty miles from his home in Bridgeton, North Carolina, to Lee Creek, where he spent countless hours roaming the piles of recently excavated dirt, looking for fossils. In 1975 he retired early from his successful career as a factory manager so that he could pursue paleontological fieldwork for the Smithsonian more intensively. Dr. Ray writes: "He has collected with unflagging enthusiasm more fossils of more kinds for science than anyone who has ever worked the middle Atlantic Coastal Plain, discovering specimens unprecedented in kind, quantity, or quality. If one ever needed a reminder that paleontology traditionally has been and remains largely a field science, the enjoyment and advancement of which is open to everyman to the extent of his ability, effort, and interest, Peter Harmatuk provides irrefutable proof."

Dr. G. Arthur Cooper, paleobiologist emeritus, was awarded the Penrose Medal, the highest honor given to American geologists, at Geological Society of America meetings in Indianapolis, in October 1983. Cooper, in his fifty-fourth year at the museum was cited for "being the world's foremost expert on brachiopods; for being an inspirational teacher to generations of young paleontologists, for building a national collection of brachiopods and other invertebrate fossils that is unparalleled in the world and for applying his rich knowledge of fossil lore to the resolution of geological enigmas."

Research geologists Drs. Ian G. Macintyre and Kenneth M. Towe continued their investigation into the thousands of projections—resembling stalactites—that coat the ceiling of a huge, uncharted limestone marine cave off Belize, Central America. The projections, caused by the extensive precipitation of magnesium calcite, have no known counterpart in any other marine environment in the world. In 1983–84 experiments were carried out that will assist in establishing the role that bacteria play in the origin of the carbonate precipitations. Large schools of fish frequent the cave opening, fifty feet below the sea surface, including sharks that rest on the cave floor and on ledges in the ceiling. Macintyre and Towe believe that these fishes and sharks release organic wastes that upon decaying produce by-products that are responsible for the precipitation.

The luxuriant coniferous forests, meadows, and alpine slopes of the Altai Mountains in southwestern Siberia are similar in many ways to the vegetation of the Rocky Mountains. Dr. Stanwyn G. Shetler in mid-1983 took part in a joint Soviet-American botanical expedition that explored this region of Asia—traveling by horseback to reach the most rugged mountainous areas. The trip is believed by Dr. Thomas Elias of the New York Botanical Garden, the U.S. Team leader, to be the most important field expedition American botanists have made in the USSR in modern times. One of the expedition's objectives in the Altai Mountains was to explore jointly with Soviet botanists the relationship between the plants of these central Asian mountains and the plants of the Rocky Mountain region of North America. During the second half of the expedition, the field party visited the western Sayan Mountains in the Tuvan Autonomous Republic, a wilderness where American botanists had never collected before and where they studied the resemblances between this region's plants and those of Alaska and boreal North America.

The expedition, organized by the Main Botanical Garden in Moscow and the Central Siberian Botanical Garden, Novosibirsk, was the eighth U.S. plant collection on Soviet territory under the auspices of a special bilateral exchange program begun in 1976. The U.S. botanists returned with about 5,000 specimens, representing 400–500 species, which were divided more or less equally between the Smithsonian, the New York Botanical Garden, and the University of Alaska. The material represents an invaluable collection of Siberian plants that will now be available in North America to all future workers. Shetler was able to collect specimens of most of the species of bellflowers (family Campanulaceae) native to southern Siberia, and these collections and observations will contribute greatly to his ongoing studies of this plant family.

Dr. Dan H. Nicolson spent two months in the summer of 1984 in southwestern China (Yunnan Province) collecting plants as one of four Americans on a Sino-American exchange program. The group did most of its collecting in the Cang Shan mountain range west of the ancient walled city of Dali, about 400 kilometers west of Kunming, the capital of Yunnan, on the Burma Road. More than 19,000 specimens were collected. All collections were divided equally between China and the United States, the Smithsonian receiving one-third of the U.S. duplicates. The flora involved (Sino



(Himalayan) is the richest temperate flora in the world and is of great interest, not only to scientists, but to horticulturists. Four Chinese botanists are scheduled to come to America in 1985 as part of the exchange program worked out between the Academia Sinica and the National Science Foundation.

In other Chinese related research, the museum's Dr. Thomas Soderstrom is working with Dr. Julian Campbell of the University of Kentucky on the classification of the complex bamboos of Sichuan. It is in the wilds of Sichuan that the last surviving population of giant pandas live—feeding on various bamboos. Both scientists are trying to improve our general knowledge of these Sino-Himalayan bamboos, so important to the survival of the giant panda.

In 1983–84 the museum became one of six multinational sponsoring organizations of a long-term project to produce a flora of Guyana, Suriname, and French Guiana. Nearly a dozen museum botanists—coordinated by Dr. Richard Cowan—will be involved. The University of Utrecht, The Netherlands, will be the administrative center for the program. Other participants are the Botanischer Garten and Museum, West Berlin; the New York Botanical Garden; the Natural History Museum of Paris; and the overseas research arm of the French Government.

Botanists Dr. Mark M. Littler, Diane Littler, Dr. James Norris, and Katina Bucher made a surprising discovery in 1984 while surveying the marine plant life off San Salvador Island, Bahamas, in a research submersible with colleagues from the Harbor Branch Foundation, Inc. Exploring an uncharted seamount at a depth of 880 feet, they found it covered with a calcareous form of red algae, establishing a new maximum depth record for photosynthetic plant life on earth. In the past it was thought that light penetration in the ocean was insufficient for sustainable plant growth below 100 fathoms (600 feet). The discovery indicates that the role of macroalgae in deep-water oceanographic processes is much greater than previously believed.

#### DEPARTMENT OF ANTHROPOLOGY

The oral traditions of the older Mayan men and women who live in Chiapas, Mexico, are being lost as elderly people carry their knowledge to the grave. Many of the younger Mayans are literate in Spanish—but increasingly ignorant of their ancient culture. After Indian participants in a 1982 anthropology conference at

San Cristobal, Chiapas, expressed concern over this loss, ethnologist Dr. Robert Laughlin began organizing and overseeing a writer's cooperative dedicated to preserving Mayan Indian culture. The "House of Writers" is composed of six members, representing the Tzotzil towns of Chamula and Zinacantan, and the Tzeltal towns of Oxchuc and Tenejapa. Laughlin, who for many years has studied Mayan civilization and is the author of a dictionary of Tzotzil, a language spoken by more than 200,000 Mayan Indians, prepared alphabets in Tzotzil and Tzeltal for use by the group and edited the first five bilingual illustrated booklets of history and folklore published by the cooperative in 1983-84 at the State of Chiapas Press. The books are now being distributed in the communities. The project has the backing of Mexico's National Indian Institute.

The museum's Human Studies Film Archives, the only national organization dedicated to collecting and preserving motion picture and video documentation of world culture, now has 1.5 million feet of footage, including some of the most important anthropological film collections formerly in private hands. In 1983-84 alone, the archives received in trust more than 900,000 feet of film, including John Marshall's substantive documentation of the Kung bushmen of southern Africa, footage of the Yanomamo Indians of Venezuela and Brazil by Timothy Asch and Napoleon Chagnon, and Allison and Marek Jablonko's research films of the Maring people of the Papua New Guinea highlands.

*Arctic*, volume 5 of the *Handbook of North American Indians*, was published in January 1985. The sixth volume in the series to be completed, it describes the Arctic people and all Eskimo groups from Siberia to Greenland. Research and editing on the Great Basin (volume 11) are underway. All Handbook volumes are in print, with more than 55,000 copies sold. The series is under the general editorship of William C. Sturtevant.

Dr. Herman Viola, director of the museum's National Anthropological Archives, produced a lavishly illustrated overview of the treasures of *The National Archives of the United States*, in honor of the National Archives' fiftieth anniversary. Dr. William Trousdale, curator of Far Eastern Archeology, edited an English memoir of nineteenth-century Afghanistan that provides a valuable chronological of the political events of the time as well as interesting information on Afghan archeology, history, and industry. Drawing heavily on the museum's Tibetan collections, Dr. Paul Taylor, curator of Asian Ethnology, organized an exhibition for the Smith-

sonian's Renwick Gallery celebrating the Tibetan Yak. This animal occupies a central position in Tibetan life—somewhat as the bison did for America's Plains Indians—not only as a source of meat and milk protein and of wool, hide, and horn for tents, clothing, and utensils, but also as the pack animal on which the country's trade depends. Taylor was also instrumental in the acquisition of the large private library of the late Professor John M. Echols, an authority on Indonesian languages and developer of Cornell University's Southeast Asian Studies program. This single purchase helps fill in a serious gap in Smithsonian Asian Ethnology library resources.

Major new archeological excavations were undertaken in 1983–84 by Dr. Dennis Stanford at the classic Clovis paleoIndian archeological site at Blackwater Draw in eastern New Mexico. Core samples taken in 1983 determined that the site had not been completely destroyed, as feared, by twenty years of commercial gravel mining in the area; extensive Clovis, Folsom, Agate Basin, and Cody archeological deposits remain and are now being explored by Stanford and geologist Vance Haynes (University of Arizona) and other experts in the field of paleontology, palynology, and soil analysis.

Two months of archeological surveys in Labrador in 1983–84 by Dr. William C. Fitzhugh provided a much clearer picture of how early Maritime Archaic peoples lived. Evidence of early single-family round or oval pithouses dug into boulder beaches were found by Fitzhugh on the islands of Aillik, Big Bay, Natsatuk, Karl Oom, Immilikuluk, and other locations. Excavation of several of these sites produced diagnostic implements and radiocarbon samples that should provide keys to the early developmental sequence of this period (ca. 6500–4500 BP).

Dr. Gus Van Beek returned for the eleventh year to Tell Jemmeh, in Israel's western Negev Desert, where he excavated two areas representing a crucial but unknown period in Philistine culture history (tenth to ninth century B.C.), recovering a fine series of burnished red slip pottery that came from four successive occupation periods and that should make it possible to trace the development of pottery forms and decorative techniques during this century.

Physical anthropologist Dr. Donald J. Ortner in July 1984 began a detailed and comprehensive study of 300 bone specimens in the museum's human skeletal collections that exhibit pathological conditions of special significance. The three-year study, supported by

a National Institutes of Health grant, is expected to shed light on the origins and development of disease—and its relations to environmental and cultural factors—both of which remain important in the treatment of disease today.

#### DEPARTMENT OF MINERAL SCIENCES

Over the past fifteen years the scattered fragments of possibly as many as 1,000 meteorites, preserved in the Antarctic polar ice cap for as long as  $\frac{3}{4}$  million years, have been found by U.S. and Japanese expeditions. This amazing scientific bonanza amounts to more than 25 percent of the total number of meteorites collected on earth in the past 200 years. Drs. Brian Mason and Roy S. Clarke have been charged for the past eight years with the responsibility of characterizing and describing the largest portion of the U.S. Antarctic material. Mason, a specialist in the mineralogy of chondrite and achondrite meteorites, the types mostly found in Antarctica, in 1983–84 published in the *Antarctic Meteorite Newsletter* descriptions of 151 specimens, including several distinctively new and unusual mineralogical types. Clarke, a specialist in the much more scarce iron meteorites, published on three new specimens. This basic analytical work is opening up new vistas of knowledge on the composition of parent meteoritic bodies, and laying the groundwork for other important discoveries. For example, scientists now believe there is evidence that the flux of meteoritic types received by the earth may have changed over geologic times. Some of the meteoritic material under study by Mason and Clarke was found by Dr. Robert Fudali, who has accompanied two recent National Science Foundation-funded U.S. expeditions to Antarctica. On last year's trip Fudali and six other scientists logged more than 800 miles on snowmobiles during forty-two days at remote stations on the polar plateau west of the Transantarctic mountains, collecting more than 300 meteorites and meteorite fragments, including several rare carbonaceous chondrites.

Dr. Kurt Fredriksson is interested in developing more sensitive equipment for quantifying chondrite meteorite trace element content and ratios. Collaborating with a group of scientists working at the Max Planck Institute, Mainz, West Germany, in 1983–84, he worked out an ion probe technique for this purpose that is more sensitive than standard electron microprobe analysis. Fredriksson presented his findings at the 9th Symposium on Antarctic Meteorites in Tokyo.

Museum volcanologists in 1983–84 carried on research focusing on various aspects of global volcanism. In his quest to understand how volcanoes develop and grow, Dr. Tom Simkin is looking at submerged seafloor volcanoes, which are many times more numerous than those above sea level. Diving in the research submersible *Alvin*, at depths of 1 to 3 kilometers in June 1984, Simkin investigated several young volcanoes on the Pacific floor with shapes similar to the Galapagos Islands volcanoes, 1500 kilometers to the south, that he has studied for years. These volcano shapes, although uncommon among oceanic islands, are now being recognized in many detailed seafloor studies, and Simkin's dives produced evidence that they form in much the same way as their Galapagos equivalents.

Dr. Richard Fiske, director of the National Museum of Natural History, is involved in a long-term project at the Soufriere volcano of St. Vincent, British West Indies, which erupted violently in 1979, and is expected to erupt again before the end of this century. In June 1974 Fiske and his colleagues installed a new "tilt" station on the southwestern slopes of the volcano that will make it possible to determine with reasonable precision the location of swelling caused by subterranean lava surges. The project objective is to develop an inexpensive, low-tech monitoring system that can be used by Third World nations to determine when potentially dangerous volcanoes will erupt.

Arenal, a highly explosive Costa Rican volcano, has been under study by Dr. William Melson since its last major eruption in 1961. Last year Melson started fieldwork on an intensive combined volcanological and archeologic study of Arenal Volcano's tephra apron. The work has revealed that Arenal's first major explosive eruption occurred about 1000 B.C. Repeatedly, the region was re-inhabited by Indians, and the study is making it possible to prepare a remarkably precise chronology of their cultural changes from the frequent catastrophic burial of habitation sites. This work is being carried out with Payson Sheets, University of Colorado at Boulder, and, in addition to Smithsonian funding, it has received support from the National Science Foundation and National Geographic Society.

*Krakatau 1883: The Volcanic Eruption and Its Effects* was published in December 1983 by the Smithsonian Institution Press. Volcanologists Tom Simkin and Richard Fiske, coauthors with Sarah F. Melcher and Elizabeth Nielsen, in 1983–84 gave more than a dozen Krakatau talks to both scientific and lay audiences

in the United States, Canada, Japan, and Holland. The great interest in the eruption—the most famous volcanic catastrophe in recorded history—was also evident in the extraordinarily rapid sales of the book.

#### DEPARTMENT OF INVERTEBRATE ZOOLOGY

Concern over the high prevalence of cancer in fish living in chemically contaminated bodies of water, and the potential human health hazard posed by consuming these fish, using the water, or being associated with production of the polluting chemicals, focused attention in 1983–84 on the museum's Registry of Tumors in Lower Animals. The registry, created and funded by the National Cancer Institute, has for eighteen years been the only clearing house in the world for information on the phenomena of cancer in fish and other vertebrate and invertebrate coldblooded animals.

Working out of an office and laboratory in the Department of Invertebrate Zoology, director John Harshbarger and his staff maintain a specimen depository of more than 5,000 specimens from the United States and forty other countries. Every week, new material arrives for examination. In the past year, Harshbarger studied, diagnosed, and described 450 cases of disease. Reports of these diagnostic studies were entered into the registry's computerized databank and circulated to scientists throughout the world. Among the cases Harshbarger studied last year with various collaborators were tumors in the liver and other organs of a feral population of sauger and walleye fishes inhabiting Torch Lake in Michigan, which is heavily polluted by chemicals and residues of copper mining; liver and skin cancer in brown bullhead catfish from the industrially polluted Black River, Ohio; and liver cancer in tomcod fish from the Hudson River. Testifying in October at a congressional subcommittee hearing on the growing incidence of tumors and cancers in polluted waterways, Harshbarger recommended the initiation of systematic and regular surveys of fish populations in waterways throughout the nation to help locate dangerous sources of pollution so that sport fishermen and consumers will be able to determine if the fish and shellfish they catch, buy, and consume come from contaminated areas.

Spectacular video footage documenting never-before-seen behavior patterns of deep-water echinoderms was compiled in April 1984 by the museum's Dr. David Pawson, Dr. Porter Kier, and

Dr. Gordon Hendler, and Dr. John Miller of the Harbor Branch Foundation, Inc. In the third in a series of dives carried out by the four scientists over the last year off the Bahama Islands in the Harbor Branch research submersible, *Johnson-Sea-Link-II*, descents were made as deep as several thousand feet along the sometimes steep underwater slopes, to investigate the deepwater echinoderm fauna—starfish, sea urchins, brittlestars, basketstars, sea cucumbers, feather stars, and sea lillies. The rich, diverse echinoderm fauna in this area has never been explored firsthand until now, although scientists have long known about the animals living there, as a result of collections made more than a century ago with the help of dredges. The dredges, however, often brought up dead, damaged specimens, which gave little information on the animals' delicate structures, behavior, or lifestyle. But the highly mobile Harbor Branch submersible, outfitted with sophisticated collecting equipment, can pluck animals from the rugged sea floor slopes and bring them back alive in nearly pristine condition. Eighteen dives were made on the April cruise, each lasting about three to five hours.

Approximately eighty species of echinoderms—500 specimens in all—were collected; at least twenty of these new to the scientists' survey list. To date, the Bahamas survey has yielded nearly 120 deepwater species, some new to science, and thousands of new specimens for Smithsonian and Harbor Branch collections. In addition, hours of color videotape footage and hundreds of still photographs were shot. Detailed analysis of the specimens and film is now in progress.

#### SMITHSONIAN OCEANOGRAPHIC SORTING CENTER

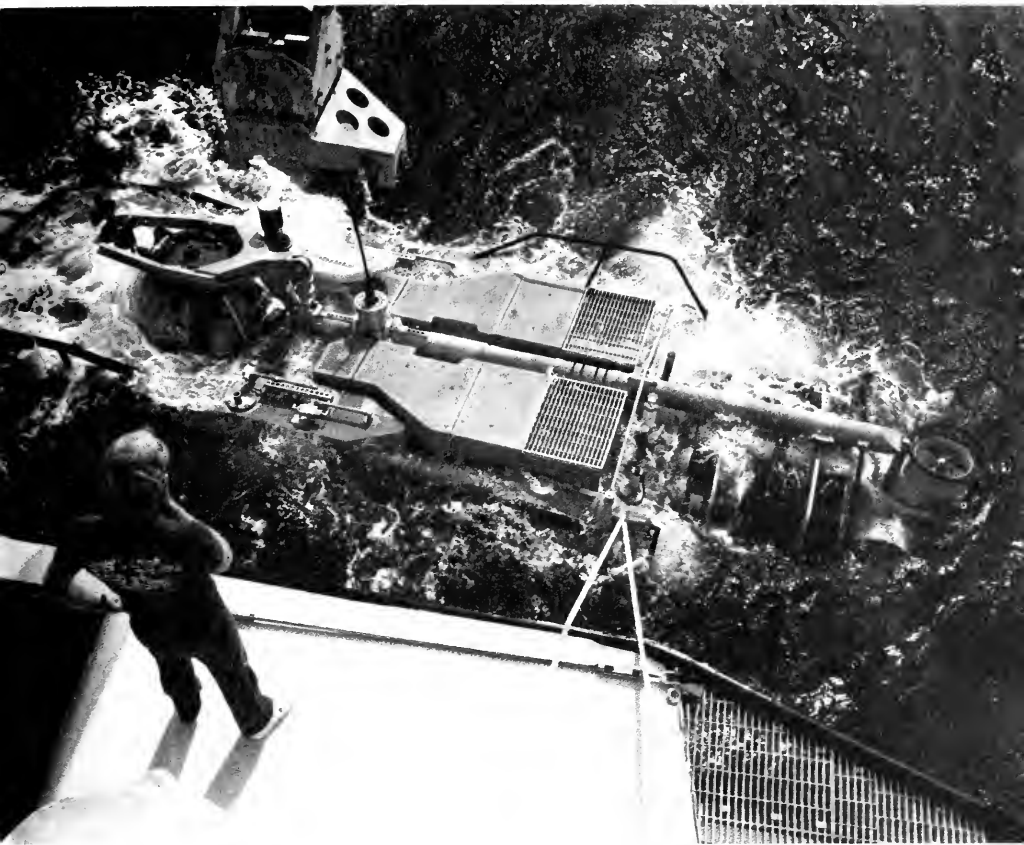
Several major collections of plankton were received in 1983–84 from the western North Atlantic, northern Caribbean, and the eastern Gulf of Mexico, and interesting collections of fishes and benthic invertebrates were also taken from the Gulf of Alaska and the Caribbean. During the year the sosc staff prepared 135 shipments containing 51,916 specimens for shipment to sixty-three specialists and to five permanent repositories. Staff research projects included Dr. Frank Ferrari's work at the California Department of Fish and Game's Laboratory in Stockton, studying a small copepod accidentally introduced from the Yangtze River delta in China into the Sacramento-San Joaquin delta in California; and Dr. Gordon Hendler's series of experiments at Carrie Bow Cay concerning the ability of brittlestars to change color.

Numerous scientists from various organizations of the Smithsonian, joined by colleagues from other institutions, visited the museum's Marine Station at Link Port, near Ft. Pierce, Florida, in 1983-84 to conduct research on a wide variety of topics in marine sciences—from sedimentology and the spectral quality of underwater light to systematic, ecological, reproductive, and behavioral studies. The museum's Dr. Robert P. Higgins and Dr. Reinhardt Kristensen, a Smithsonian postdoctoral fellow affiliated with the University of Copenhagen, carried out a dredging and coring survey of the meiofauna living in the sediments of a ten-square-mile area off the coast of Ft. Pierce at depths of ten to fifteen meters. Both scientists are authorities on the systematics and life histories of meiofauna—diminutive multicellular organisms adapted to living in spaces between grains of sediment and sand on ocean floors and beaches. The fact that these organisms represent a relatively unexplored biological frontier was underscored in October 1984 when Kristensen announced the discovery and description of a new meiofaunal phylum—Loricifera. It was only the third time in this century that a new phylum has been added to the animal kingdom, bringing to thirty-nine the total of these high-level classification groups.

Loricifera—less than one-hundredth of an inch in length—is distinguished from the four other meiofauna phylum by a mouth apparatus that consists of a flexible tube that can be telescopically retracted into the animal. It also has clawlike and clubshaped spines on its head that help keep it firmly attached to the sediment. Kristensen has documented the animal group in sea-bottom samples from waters off France, Greenland, the South Pacific, and the Atlantic coast of the United States. At Link Port he and Higgins collected a wide range of meiofauna, including larval and molting loriciferan specimens that yielded significant new information on the life histories of this recently recognized phylum.

Among the other studies in 1983-84 were research on gastropod systematics by the museum's Richard S. Houbbrick; a study of the reproductive biology of brooding ophiuroids by Dr. Maria Byrne, a Smithsonian postdoctoral fellow; and an investigation of the life history of the rock boring barnacles by Joseph Dineen, a University of Maryland graduate student. Dr. Judith Winston, American Museum of Natural History, and Dr. Eckart Hakansson, University of Copenhagen, continued their study of the life histories and





*Johnson-Sea-Link II*, still attached by ropes and crane to its mother ship, the *R/V Johnson*, prepares to embark with National Museum of Natural History and Harbor Branch Foundation scientists in search of echinoderms in the Bahamas. (Photograph by Jeff Tinsley)

population ecology of two free-living species of bryozoans. Electrophoretic enzyme studies by the museum's Dr. Kristian Fauchald on a species of polychaete from both sides of the Florida peninsula demonstrated apparent inherent differences in morphologically extremely similar populations. The museum's Dr. Raymond B. Manning and Darryl L. Felder, of the University of Southwestern Louisiana, conducted a study of parasitic peacrabs (pinnotherids), which live in burrows of mud shrimps (pinnotherids). Dr. Anson Hines, of the Smithsonian Environmental Research Center, studied the growth patterns of four xanthid crabs that differ in size at maturity.

A study of the behavior of amphipods by the museum's Dr. J. L. Barnard and James D. Thomas, of the Newfound Harbor Marine Institute, stressed the function of appendages, individually and cooperatively in performing such tasks as tube building, grooming, and feeding and in inter- and intraspecific confrontations. With the help of time-lapse photography, supervised by Kjell Sandved, the museum's scientific photographer, the tube-building behavior of two amphipod species was documented with special attention to the production and manipulation of silk strands by the appendages to form the tubes.

#### MUSEUM SUPPORT CENTER

The first full year of operation of the Museum Support Center (MSC) has been marked by the staffing of key positions, the implementation of special policy procedures governing pest control and inventory management, the installation of a sophisticated electronic security system, and the first phase of construction of the collection storage equipment. In addition, the initial move of both people and collections into the center took place. The National Museum of American History was the first to formally take occupation of assigned space, bringing in the first collection object, a harpsichord, for conservation treatment. Next, the Conservation Analytical Laboratory moved to the Support Center, vacating its former quarters in the Museum of American History. Subsequently, the National Museum of Natural History established its botany plant-mounting lab, paleobiology sedimentology lab, and vertebrate zoology histology lab at MSC. An acarologist associated with the National Institutes of Health and working in affiliation with the museum's Department of Entomology has moved his entire lab, including his scanning electron microscope and his

significant reference collection of ticks, from Montana into the center.

Until permanent storage systems are completed, msc has been able to provide limited temporary storage for collection materials from Natural History, as well as special space for use by the Smithsonian Traveling Exhibition Service and the Museum of African Art. Preparations are currently underway to accommodate the needs of the new Sackler Gallery and the Center for Asian Art, which will use space at msc loaned to them by the Department of Anthropology until the new Quadrangle building is ready. The Support Center was honored in a local competition sponsored by the regional power companies for being one of the best designed and constructed new buildings in the area as regards energy efficiency.

### *National Zoological Park*

In fiscal year 1984 the National Zoological Park (NZP) continued its commitment to education, science, recreation, and conservation through animal exhibits, symposia, publications, research with the collection, and research and breeding of endangered species. These programs were accomplished through the combined efforts of the Office of Animal Programs, the Office of Support Services, and the Office of the Director.

#### *ANIMAL COLLECTION AND EXHIBITS*

There were many notable changes in the animal collection of the National Zoological Park, including significant births and deaths as well as major acquisitions. In late November 1983, Ling-Ling, the female giant panda, was critically ill with a serious kidney infection with associated anemia. After successful treatment by the veterinary staff, Ling-Ling's condition improved so dramatically that she had a normal heat cycle in the spring. On March 19, 1984, Ling-Ling mated twice with Hsing-Hsing and became pregnant. After a gestation period of 139 days, she gave birth, but her cub, a male weighing 5.3 ounces, was stillborn, as a result of a bacterial infection.

Many of the rare and endangered species maintained by the National Zoological Park produced offspring during this period. The second spectacled bear cub was born and the Cuban croco-

diles laid twenty-nine eggs, many of which hatched, for the first time at the National Zoo. The first pygmy hippo in seven years was born. There were also births to the grey seals, sea lions, golden lion tamarins, maned wolves, scimitar-horned oryx, Père David's deer, titi monkeys, red pandas and Goeldi's monkeys. Several established breeding programs of the departments of Ornithology and Herpetology continued with hatchings by Ruddy ducks, Laysan teal, white-winged wood ducks, white-naped cranes, Stanley's cranes, rufous beaked snakes, giant day and leopard gekkos, and red-footed and leopard tortoises. A total of 1,233 births and hatchings were recorded for calendar year 1983 by the National Zoo, which ended that year with 2,932 animals in its collection.

The major animal acquisition in fiscal year 1984 was an infant Asiatic elephant presented to President Reagan on June 18, by the president of Sri Lanka. The elephant, named Jayathu, was a Zoo favorite, with a personality that charmed many zoogoers. Unfortunately, she contracted a serious digestive problem and died on August 30, despite massive efforts by the veterinary and keeper staff. Other significant acquisitions included black palm cockatoos from Malaysia, birds of paradise from New Guinea and green-winged macaws. Two new research projects were initiated on species completely new to the National Zoo's collection. In collaboration with the Duke Primate Center, the National Zoo successfully reproduced western tarsiers, acquired from Malaysia, for the first time. Tarsiers have been little maintained or exhibited in zoos because of their delicate and nocturnal nature. Field studies are to be conducted on behavioral ecology in order to develop a more comprehensive understanding of the biology of tarsiers.

Dr. Eugene Morton traveled to Guam and returned with four Guam rails, a species disappearing from the island with astonishing rapidity. In spearheading an attempt to breed Guam rails in captivity, Dr. Morton hopes that the decline of the species on Guam can be reversed and that captive-bred rails can be reintroduced to the island. Eggs have already been laid and hatched by this endangered species. Many other bird species on Guam are endangered as well, and NZP will also be participating in a captive-breeding program for the Guam kingfisher.

Several other staff members are deeply involved in national and international captive-breeding programs for endangered species, including Dr. Katherine Ralls and Jonathan Ballou, who represent the National Zoo on the IUCN's Survival Service Commission's Captive Breeding Specialist Group. Dr. Devra Kleiman and Ballou



The first of the "Pennies for Pandas" is contributed by a District of Columbia public school student with the assistance of Mrs. Nancy Reagan and Russell Train, head of the World Wildlife Fund, outside the National Zoo's panda yard.

maintain the International Studbook for Golden Lion Tamarins, while Scott Derrickson has become NZP's representative for the Bali Mynah Propagation Group, with Guy Greenwell as special advisor in management. NZP is deeply involved in formulating plans to reintroduce the Bali mynah to Indonesia, using captive-bred stock. Other Species Survival Plan programs underway include those for gorilla, black rhino, and Indian rhino.

The animal inventory is in the process of being completely computerized, which will ease NZP's ability to maintain records and retrieve information. Currently, all bird transactions are recorded directly into the computer; ultimately, NZP hopes to be able to communicate directly with the International Species Inventory System (ISIS) in Minnesota through the Smithsonian computer systems.

The outdoor furniture in the giant panda yards was completely replaced in a unique effort that involved NZP staff and more than 400 volunteers from the Friends of the National Zoo. Included in this building effort were swings, platforms, feeding trees, tires, and other wooden sections designed to encourage greater activity in the giant pandas.

The Department of Animal Health (DAH) continues to strive for furthering veterinary care of the animal collection at both Rock Creek Park and the Conservation and Research Center (CRC) in Front Royal, Virginia. The clinical staff participates in research and development of techniques; conducts postgraduate training; publishes extensively; and attends and leads continuing education—all in an effort to further zoological medicine.

International involvement is exemplified by the participation of Drs. Mitchell Bush and David Wildt in reproductive and immobilization studies in South Africa; presentations at international scientific meetings; and involvement in ongoing field studies such as the Golden Lion Tamarin Project in Brazil.

Reproductive research continues in endocrinology and the development of techniques in the areas of semen and embryo collection, transfer, and cryopreservation. These programs are conducted by Dr. Wildt and his graduate students in collaboration with the National Institutes of Health, the National Cancer Institute, and the Uniformed Services University for the Health Sciences.

Ongoing clinical research, intended to be directly applicable to veterinary care, includes studies of *Mycobacterium ssp.* in hoof-stock, rabies prophylaxis and vaccination response in nearly all species of mammals, monoclonal killed canine distemper vaccines,

appropriate anthelmintics for reptilian parasites, and adrenal response to immobilization and surgical manipulation in selected primate, ungulate, and carnivore species.

Veterinary facilities at CRC are under construction to provide that facility with a fully equipped animal hospital to provide surgical, hospitalization, and clinical laboratory support for that portion of the animal collection.

The computerization of the DAH medical records is proving invaluable in maintaining medical histories of individual animals, allowing retrospective studies of health conditions, and providing a monitor for preventative health care for the entire collection.

The Department of Pathology actively engages in applied research and teaching as important spinoffs of the diagnostic services that are provided to the zoo collection. Research centers around the disease problems that exist in the collection, with emphasis on the development of prophylactic measures against infectious diseases and parasites that affect the animals.

This department maintains a very active residency program, teaching pathology of zoo animals as a unique specialty at the postgraduate level to veterinary pathology residents from the Armed Forces Institute of Pathology and to an in-house pathology resident as well as instructors from various veterinary colleges.

Research, supported by the Charles Ulrich and Josephine Bay Foundation, through the American Association of Zoo Veterinarians, to study viral diseases in zoo animals, has continued to be most productive. The Walter Reed Army Institute of Research and the Department of Animal Health have collaborated with us in studies that have led to new information about the use of canine distemper, parvovirus and rabies vaccine in certain zoo animals. NZP has also continued collaborative research of the raccoon rabies epizootic that has occurred in the southern and middle Atlantic states and has engaged in joint studies concerned with epizootiologic aspects with the National Park Service, the University of the District of Columbia, and the Centers for Disease Control. Information from more than three years of monitoring the epizootic as it moved from Northern Virginia to Washington, D.C., was presented at the North American Symposium on Rabies in Wildlife, held at Johns Hopkins University in the fall of 1983.

Another ongoing project has been studying the effect of intravenous avian tuberculin on the hemogram of tuberculous and non-tuberculous quail (*Coturnix coturnix*), which was funded by the Friends of the National Zoo (FONZ).

*Pasteurella multocida* has been identified as the cause of an outbreak of septicemic deaths in southern potoroos (*Potorous apicalis*), in which the organisms acted as an opportunist during periods of stress associated with aggression in the potoroo colony. The syndrome resembled pasteurellosis of rabbits in which the pasteurella organism is introduced by a carrier animal and becomes overt during stressful periods.

New projects include iron metabolism studies in rock hyrax (*Procavia capensis*) with hemochromatosis, and its possible association with gastric grassanemiasis, and the identification and epizootiologic aspects of equine herpes virus (EHV-1) that was recovered from an aborted onager (*Equus hemionus onager*) fetus and implicated in a neurologic syndrome of a yearling zebra (*Equus burchelli*). A retrospective study of sera that had been banked from various equidae at Rock Creek Park and Front Royal indicated exposure of most of the zebras to EHV-1 at both sites as early as two years prior to the abortion. There were, however, no recognizable clinical signs such as the upper respiratory infections that occur frequently in domestic horses in any of the zebras or onagers. The herpes virus isolated from the onager fetus was identified as a unique subtype by virologists at the University of Kentucky, Lexington, and is being further studied.

Dr. Richard J. Montali attended an international symposium on the diseases of zoo animals in Brno, Czechoslovakia, and delivered a paper on reproductive strategies in zoo animals coauthored with Drs. Wildt and Bush of the Department of Animal Health. Dr. Montali also attended the Primate Pathology Workshop in San Francisco and presented a paper on special disease problems in folivorous monkeys and their implication on the management of these highly specialized primates in captivity. He lectured on gross lesions of zoo animals at a C. L. Davis Foundation for Veterinary Pathology session and presented a four-hour seminar at the Centers for Disease Control in Atlanta on the pathology of zoo animals.

#### RESEARCH

There were a variety of continuing and new research projects at the National Zoo. One of the more exciting involved the rehabilitation and training of captive-born golden lion tamarins prior to their reintroduction in the Poço das Antas Reserve in Brazil. Dr. Devra Kleiman accompanied fifteen golden lion tamarins to the Rio de Janeiro Primate Center in November 1983. Both before and



after their arrival in Brazil, Dr. Benjamin Beck, Dr. Kleiman, and several Brazilian students worked with these animals to train them in techniques of foraging for, finding, and exposing new foods. At the same time, Dr. James Dietz has been working on the behavioral ecology of wild golden lion tamarins in Brazil in order to determine their feeding habits, home range and movements, and social organization. As part of the Golden Lion Tamarin Reintroduction Project, Lou Ann Dietz has been coordinating a local and national educational program in Brazil concerning conservation of golden lion tamarins.

Dr. Rudy Rudran held another successful wildlife management training course at the CRC with students from Peru, Sri Lanka, China, Nigeria, and Malaysia. Dr. Rudran also conducted wildlife management training courses in Brazil and visited Argentina and Venezuela to follow up on previous studies. Dr. Morton continued his research program on the evolution of animal vocal communication, welcoming Eyal Shy from the Edward Grey Institute in Oxford to initiate a research project on the function of bird song. He has initiated a major work on the evolution of animal communication in collaboration with Kimberly Young. Dr. Morton and Dr. Russell Greenberg continued collaborative studies on the development of feeding behavior in migratory warblers, relating the differences in behavioral development in species to their feeding adaptations as adults.

Dr. Katherine Ralls continued her studies of sea otter behavioral ecology and held a workshop on the Genetic Management of Captive Populations at Front Royal, assisted by population manager Jonathan Ballou. Lisa Forman initiated studies on the genetics of golden lion tamarins and dorcas gazelle, in collaboration with Dr. Stephen O'Brien at the National Institutes of Health genetics laboratory. These will be the first studies in which pedigrees of known captive populations are compared with the actual degree of biochemical heterozygosity.

Dr. Steven Thompson joined the National Zoo as a postdoctoral fellow to initiate studies of the comparative energetics of eutherian and marsupial mammals, with a National Science Foundation grant and a Smithsonian postdoctoral fellowship. He will be collaborating with Dr. Martin Nicoll, a postdoctoral fellow with Dr. Edwin Gould, concerned with the behavioral ecology and metabolic rates of conservative mammals such as tenrecs. The research will focus on the changes in the metabolism of marsupials and eutherian mammals during the course of the reproductive cycle.

Dr. John Gittleman, postdoctoral fellow with Dr. Kleiman, continued his work on red panda development and vocalizations. He also collaborated with Dr. Olav Oftedal in a study of behavioral development and lactation in black bears, conducted on wild black bears in Pennsylvania. Dr. Oftedal and Dr. Daryl Boness continued fruitful collaborations, with work on the hooded seal lactation and milk composition being initiated on the ice floes off the southeastern coast of Labrador. They have discovered that hooded seals have the shortest lactation period of any mammal. They also continued their long-term studies of behavioral development and lactation in the California sea lion in California, with the assistance of Dr. Katherine Ono. Mary Allen continued her studies of insect-eating animals and captive diets.

Dr. John Seidensticker continued the Field Studies Programs at CRC, concentrating on the dispersal and foraging behavior of raccoons, in collaboration with Dr. James Hallett and Dr. Margaret O'Connell. Theodore Grand expanded his studies of functional morphology of mammals with a comparison of the morphology of several ungulate species as it relates to their ecology.

The animal collection of the Department of Zoological Research was involved in several programs, including studies of marsupial and eutherian energetics and also of the basic reproductive biology and management of several little-known forms. Miles Roberts and the keeper staff completed several papers for publication, one of them on the captive reproduction and management of the little known rock cavy.

Fred Koontz completed his University of Maryland Ph.D. thesis on the behavior of captive elephant shrews. Susan Lumpkin and Devra Kleiman initiated a project to develop a series of books on the Management of Wild Mammals in Captivity, to be published by the University of Chicago Press.

Dr. Gould continued his analysis of regurgitation in gorillas and stereotyped behaviors in zoo animals; he also visited Malaysia to initiate field studies there. Dr. Wolfgang Dittus and Anne Baker-Dittus continued their long-term study of the Tocque macaques of Sri Lanka; she is concentrating on behavioral development and differential maternal investment and he is concentrating on long-term demographic data for this uniquely well-known population as well as on their social structure and communication patterns.

Dr. Dale Marcellini and Tom Jensen continued collaborative work on lizard behavioral ecology in the Caribbean area, looking



In July 1984 the first Cuban crocodile was hatched at the National Zoo.

The National Zoo's Smokey Bear tries out his new "feeder" tree, which automatically dispenses food pellets and honey.



both at the evolution of display patterns and interspecific competition. Dr. Christen Wemmer traveled to Asia to pursue his studies of the morphology and breeding of captive elephants, while developing the Smithsonian research program in Nepal, deriving from the long-term tiger studies. Dr. Wemmer has also been continuing his interest in the behavior and ecology of the Cervidae, and Dr. Michael Stuwe is conducting in-depth studies of the behavior of white-tailed deer at CRC.

#### CONSERVATION

Four American zoos (National, Los Angeles, New York, and San Diego) are attempting to develop a cooperative project with the Wildlife Department of Sabah, East Malaysia, for the captive propagation, as well as field research and protection, of proboscis monkeys. Dr. Gould is serving as the project coordinator. An important part of the project will be to help Sabah develop a propagation center for proboscis monkeys and eventually a wildlife park at the Sepilok Orang Sanctuary near Sandakan.

The National Zoo joined the American Association of Zoological Parks and Aquariums (AAZPA) consortium to save the Sumatran rhino. Dr. John Frazier went to India, Sri Lanka, and the Maldiv Islands to survey turtle-nesting areas as part of the marine turtle conservation program. Dr. Seidensticker was a consultant for the World Bank in developing guidelines for elephant conservation within the context of major agricultural and forestry development projects. The National Zoo received a grant from Resources for the Future to assess the impact of habitat change on indigenous wildlife populations at the Conservation and Research Center. Dr. Rudran conducted a seven-week Wildlife Conservation and Management Training course at CRC, where thirteen biologists from developing nations took part.

Prior to the summer course, Dr. Rudran conducted wildlife conservation courses for fourteen students in Brazil and nine students in Venezuela, and supervised field projects in Argentina that were initiated in 1982.

Drs. Ralls and Siniff received a grant to study the ecology, behavior, and conservation of California sea otters. In Nepal, Smithsonian conservation efforts have broadened from the former tiger project to include a more inclusive study of the terai ecosystem. Dr. Wemmer is senior research coordinator for the new Smithsonian Institution Nepal Terai Ecology Project. In 1984, Drs.

Mishra and Dinerstein initiated research on the effects of fire and mammalian herbivores on terai forest succession. In December 1983 Drs. Robinson, Wemmer, Gould, Seidensticker, Rudran, Sunquist, and Frazier, along with David Kessler, participated in the "Bombay Natural History Society Centenary Seminar on Conservation of Wildlife in Developing Countries." Dr. Wemmer consulted with members of the IUCN Asian Elephant Group in India and initiated efforts to investigate the population biology of captive elephants in Tamil Nadu, Kerala, Karnataka, and Nepal. The National Zoo joined a breeding consortium with eleven other institutions and private aviculturists to establish a self-sustaining captive population of black palm cockatoos.

Charles Pickett went to Pakistan on behalf of the U.S. Fish and Wildlife Service and the Pakistan Department of Forestry to consult on the establishment of a national zoo in Islamabad and to promote crane conservation. He traveled throughout the country, meeting with conservation officials and presenting lectures on crane conservation, captive breeding, and current research needs. During the same trip, he visited the Keoladeo Bird Sanctuary in India and participated in the annual census of endangered Siberian crane. Joan Smith began monitoring the captive population of white-winged wood ducks in the United States as studbook liaison for the Wildfowl Trust, Slimbridge, England. Dr. Scott Derrickson continued to serve on the Whooping Crane Recovery Team and consulted with a number of institutions in the United States and abroad concerning crane propagation and reintroduction techniques.

Jon Ballou was appointed AAZPA studbook analyst for the Bali mynah, and is completing a genetic and demographic analysis of the U.S. captive population in preparation for a propagation/reintroduction program in Indonesia. Drs. Kleiman, Seidensticker, Morton, and Derrickson, along with Judith Block and Messrs. Greenwell and Ballou, are currently cooperating with the AAZPA, the ICBP, and the Indonesian Ministry of Forestry in the planning, coordination, and implementation of this important conservation effort.

The most significant event in the bird collection this year was the successful breeding and hatching of the Guam rail. Other significant hatchings of birds included: Darwin's rhea, Aleutian Canada goose, white-winged wood duck, Laysan teal, white-naped cranes, and Bali mynah.

Specimens of the following endangered species were born this

year: giant panda, Goeldi's marmoset, golden lion tamarin, maned wolf, clouded leopard, Eld's deer, Persian onager, and Przewalski's horse. Of note was the ninety-eighth Père David's deer fawn and the eighty-eighth scimitar horned oryx calf born at CRC. Six sable antelope calves were born in the new, large-scale breeding program with this species at Front Royal.

#### PUBLIC INFORMATION AND EDUCATION

The National Zoo's Office of Education completed two major projects in 1984: writing *Families, Frogs, and Fun*, the final report on the three-year National Science Foundation grant for HERplab, a learning laboratory in the Zoo's Reptile House; and, with the support of the Friends of the National Zoo, organizing a week-long workshop for zoo educators on conservation in zoos.

The HERplab project, begun in 1981 to develop model family educational activities that other zoos could duplicate, ended July 31, 1984. The book *Families, Frogs, and Fun* describes how the project grew, explains the underlying philosophy, and shares what was learned in the process. The hope is that it will guide colleagues who want to start or renovate a learning lab, as well as stimulate thoughts of others interested in families and in learning or in creating interactive exhibits.

The Zoo Educators' Workshop, held May 14-18, 1984, brought together educators from five U.S. zoos to look for new ways to reach visitors with the message of conservation. *Conservation and the Zoo Visitor* documents this workshop; it reports notes from all talks and details the process of developing objectives and projects. Limited copies of both *Conservation and the Zoo Visitor* and *Families, Frogs, and Fun* are available through the Office of Education.

School programs and tours continued to be extremely successful. One original program on reptiles and amphibians began for prekindergarten through sixth grades, using the HERplab facilities and some of its activities. Guides ask questions and encourage careful observation and discussion among students to promote appreciation of reptiles and amphibians.

#### CONSTRUCTION AND SUPPORT SERVICES

Renovation of the Monkey and Elephant Houses was completed in October and November of 1983, respectively. Both provide additional facilities for animal management and public viewing.

Construction of Olmsted Walk, which is designed to enhance and preserve the natural and historical character of the zoo, is beginning in the fall of 1984. It will encompass a series of small exhibits.

At the Conservation and Research Center, a veterinary hospital is being constructed. It should be ready to provide for the continued health and welfare of the animals at CRC by April 1985. A new west wing to CRC's Small Animal Facility will be completed by the winter of 1984.

Updating of fire protection devices, security monitoring, and occupational health standards by the Office of Police and Safety has resulted in a substantial decrease in reported accidents and crime and improved health conditions of personnel and animals during fiscal year 1984.

The Office of Graphics and Exhibits (OGE) completed the design and fabrication of Smokey Bear's feeder tree, and Dr. Michael Robinson officially welcomed the public to the exhibit on July 25, 1984. A seven-panel exhibit on the return of captive-bred golden lion tamarins to their native habitat in Brazil was dedicated in early August. Photos of Nepal were exhibited in June.

A new system of public information was implemented and "building closed" signs were standardized. The first Zoo Staff Directory was distributed in June. Design was completed on a fundraising brochure for the CRC wildlife conservation training program. Serving in a support capacity, OGE assisted the Zoo symposia, Summerfest, FONZ (Friends of the National Zoo) nights, the panda furniture project, poster exhibits, and the Sunset Serenades.

#### ADMINISTRATION

After thirty years of dedicated service to the Smithsonian, Dr. Theodore H. Reed, Senior Adviser for Animal Programs and former director of the National Zoological Park, retired effective July 3, 1984. On May 21, 1984, Dr. Michael H. Robinson, former deputy director of the Smithsonian Tropical Research Institute, was appointed director of the National Zoological Park.

On July 12, 1984, Dr. Devra G. Kleiman assumed the duties of assistant director for Zoological Research and Educational Activities and Dr. Christen Wemmer was appointed assistant director for Conservation and Captive Breeding Programs. Also on July 12, Dr. Scott Derrickson was appointed curator of birds allowing Dr. Eugene Morton to resume his position as zoologist attached to the Department of Zoological Research.

## FRIENDS OF THE NATIONAL ZOO

The Friends of the National Zoo (FONZ) celebrated its twenty-fifth birthday in 1983 with expanded programs and increased grants to assist NZP in education, conservation, and research projects. FONZ has grown from a few neighborhood supporters and a \$15 treasury in 1958 to a 50,000-member organization with forty full-time employees and an annual budget of more than 4 million dollars. Some \$400,000 was committed to NZP-directed wildlife studies.

A principal part of FONZ support is the dedicated core of 530 volunteers who each year spend 45,000 hours to staff a dozen different educational programs that serve tens of thousands of zoogoers. This year, 104 volunteers spent 1,650 hours conducting an around-the-clock watch on the giant pandas.

Recent emphasis on fundraising efforts has produced a bequest brochure and staging of the first National ZooFari dinner-dance benefit to launch the Theodore H. Reed Animal Acquisition Fund.

Financial information for calendar year 1983 is detailed below. In addition, a percentage of the FONZ-run food, shop, and parking services is available 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, 1983*

[In \$1,000s]

	<i>Net revenue</i>	<i>Expenses</i>	<i>Net increase/ (decrease) to fund balance</i>
FUND BALANCE @ 1/1/83 .....			\$1,193
SERVICES			
Membership .....	\$ 566	\$ 481	85
Publications .....	140	135	5
Education <sup>1</sup> .....	72	598	(526)
Zoo Services <sup>2</sup> .....	3,789	3,134 <sup>3</sup>	655
Totals .....	<u>\$4,567</u>	<u>\$4,348</u>	<u>\$ 219</u>
FUND BALANCE @ 12/31/83 .....			<u>\$1,412<sup>4</sup></u>

<sup>1</sup> Excludes services worth an estimated \$276,399 contributed by FONZ volunteers.

<sup>2</sup> Includes gift shops, parking services, and food services.

<sup>3</sup> Includes \$430,586 paid during this period to the Smithsonian Institution under contractual arrangement.

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



## *Office of Fellowships and Grants*

The Office of Fellowships and Grants (OFG) continued to serve as a Smithsonian link with scholarly organizations throughout the world, encouraging research by individuals from universities, museums, and research organizations in the fields of art, history and science. Scientists and scholars are placed throughout the Smithsonian to utilize the unique resources available, as well as to interact with the professional staff. At present, two major activities are managed and developed by this office: Academic Programs and the Smithsonian Foreign Currency Program.

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

The Institution further enhances the quality of its research and extends its scholarly reach through the Smithsonian Foreign Currency Program (sfcpr). This program offers grants to the Smithsonian and other scholarly institutions in the United States to conduct 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 complement programs offered at universities. The national collections and the curators who study them are unparalleled resources not available anywhere else. At the Smithsonian, historical and anthropological objects, original works of art, natural history specimens, living plants, animals, and entire ecosystems are available for study. Educational experience is enhanced by combining university training with field research—and the breadth of field opportunities at the Smithsonian is unmatched.

The Office of Fellowships and Grants administered a variety of academic appointments in 1984. Under the program of Research Training Fellowships, begun in 1965, sixty-eight pre- and post-doctoral fellowships were awarded this year. These appointees pursue independent research projects under the guidance of staff advisers for periods of six months to one year in residence at one of the Institution's bureaus or field sites. Topics of study for

Smithsonian fellows included: the regional patterns of settlement and early survival of intertidal barnacles; the American landscape in painting and prints from 1600 to 1820; observational and experimental studies in optical and infrared astronomy and radio and geoastronomy; energetics of reproduction in eutherian and marsupial mammals; material culture of the Mackenzie Eskimo at contact time; goods and money in American rural life, 1780 to 1870; and a history of Black American art, 1650 to 1941.

In addition to the general program funded through the Office of Fellowships and Grants, competitions for fellowships are also held for specific awards. The First Ladies Fellowship, which supports the study of costume in America at the National Museum of American History, was awarded for the third year. At the National Air and Space Museum, the second recipient of the A. Verville Fellowship will be studying the new American airplane of 1934, and the Guggenheim Fellow will be doing a case study on the nature of technological change, 1958 to 1983, emphasizing civilian space station concepts.

In addition, twenty-one graduate student fellowships were offered for ten-week periods during 1984. The participants are usually junior graduate students beginning to explore avenues that develop into dissertation research. This year some of these fellows studied: metallurgy in ancient Ecuador and its role in New World metallurgical development; the history of air conditioning in America, 1906 to 1979; cranial variation in the beaked whale; growth forms in two species of palms; and photography as public image.

A number of senior fellowships continued to be offered. Smithsonian Institution Regents Fellows in residence this year included Ekpo Eyo, director-general of the National Commission for Museums and Monuments in Nigeria, who was at the National Museum of African Art working on archeological excavations at Ife and Owo and an illustrated history of Nigeria from the Stone Age to the nineteenth century. The National Museum of American History was host to Merritt Roe Smith, professor of the history of technology at Massachusetts Institute of Technology, working on an interpretive history of the mechanization of U.S. industry in the antebellum period.

At the National Museum of Natural History, Joseph Ewan, emeritus professor of botany at Tulane University, engaged in research for a biographical bibliography of trail narratives of naturalists in South America; and James Griffin, senior research sci-

entist in the Department of Anthropology at the University of Michigan, researched Hopewell burial mound cultures of the upper midwestern United States; and at the Cooper-Hewitt Museum, George Nelson, an architect, was involved in research on the theory of the workplace.

To honor Regent Emeritus James E. Webb, the Institution established a number of fellowships in his name designed to promote excellence in the management of cultural and scientific not-for-profit organizations. The second awards were offered in 1984. Catherine Ross, M.B.A. candidate at the University of Pennsylvania, worked in the Smithsonian's Office of Facilities Services. Three Smithsonian staff members were selected to spend training periods away from the Institution: Elizabeth Beuck Derbyshire, Office of Folklife Programs, as a candidate for Master of Public Administration at George Washington University; Elizabeth Greene, Department of Mineral Sciences, as a candidate for a Master of Arts in Museum Studies at George Washington University; and Kenneth Yellis, Department of Education, National Portrait Gallery, as a candidate for Master of Public Administration at George Washington University.

This year several new features have been added to the program. Webb fellows will be appointed for two years each and will become members of the newly formed Webb Fellows Society. They will advise the Office of Fellowships and Grants regarding the shape and administration of the Webb Fellowship Program and counsel persons contemplating applying for a Webb Fellowship. The first eight Webb fellows, who are the founding members of the Society of Webb Fellows, are the four appointed this year along with the following who were appointed last year: Brooks Parsons, University of North Carolina; Deborah Jean Warner, Department of History of Science and Technology, National Museum of American History; Rebecca Keith Webb, Smithsonian Museum Shops; and Jon Yellin, Office of Programming and Budget.

In 1984 the Smithsonian received a three-year grant from the Rockefeller Foundation Residency Program in the Humanities for postdoctoral fellowships at the National Museum of African Art and the Center for Asian Art. The grant will support research in residence at the museums in the areas of African art history and anthropology, especially material culture, and in Asian art history for research in the collections and on topics that may initiate scholarly symposia, exhibitions, and other major museum activities.

During 1984 bureaus continued to offer support for visiting scientists and scholars in cooperation with the Office of Fellowships and Grants. These awards made possible visits to the Smithsonian by nineteen persons, principally scholars at midcareer, who did not fall within the framework of the research training program. The OFG also continued the administration and partial support of the short-term visitor program. Fifty persons spent from one week to a month at the Institution conducting research, studying collections, and collaborating and conferring with professional staff.

The expanded role of internships in the academic community continued to be reflected within the Institution. The National Air and Space Museum funded seven interns through OFG this year. The Cooper-Hewitt Museum again appointed four students under the Sidney and Celia Siegel Fellowship fund. Internships in environmental studies at the Smithsonian Environmental Research Center also continued. The Smith College-Smithsonian Program in American Studies is now in its fifth year and seven students will participate in a seminar course and conduct research projects under the direction of staff members through this program. Other interns were placed through bureau internship coordinators, while the OFG administered all stipend awards for internships.

For the fourth year the OFG offered academic opportunities to improve minority participation in Smithsonian programs. These opportunities included fellowships for minority faculty members and faculty from minority colleges, and internships for minority undergraduate and graduate students. Awards were made to sixteen interns who were placed at a variety of bureaus and offices on the Mall and at the Smithsonian Environmental Research Center and the Anacostia Neighborhood Museum. Some of these appointments have already developed into permanent relationships. The OFG also awarded five fellowships to faculty members to conduct research on subjects such as the black middle class family in historical and societal contexts, an examination of the attitude and levels of knowledge possessed by parents concerning the role and function of toys and play in children's development, black residential patterns and the city, and Cincinnati from 1802 to 1850.

The Smithsonian's Cooperative Education Program, administered by the OFG, is a student employment program that encourages minority graduate students to work in professional and administrative positions at the Institution for sixteen to twenty-six weeks, separated by periods of study at their university. It offers the

potential for permanent employment at the Smithsonian. Since January 1983, when the OFG assumed management, thirty-one student co-op appointments have been made in various Smithsonian bureaus and offices.

The position of academic network coordinator was added to the OFG in 1984 to sustain and enhance these efforts to bring minority scholars and students to the Institution. This position serves as a link between the Smithsonian and the outside scholarly community, developing communication between the two and furthering efforts to incorporate minorities into the Smithsonian workforce and research opportunities.

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 1984, Burma, Guinea, India, and Pakistan. Research projects are moving toward conclusion under program support in the former excess-currency countries of Egypt, Poland, Sri Lanka, Tunisia, and Yugoslavia.

The Smithsonian received a fiscal year 1984 appropriation of \$4 million in "excess" currencies to support projects in anthropology and archeology, systematic and environmental biology, astrophysics, earth sciences, and museum professional fields. From its inception in fiscal year 1966 through fiscal year 1984, the SFCP has awarded about \$57 million in foreign currency grants to 233 institutions in forty-one states and the District of Columbia and Puerto Rico.

This year the projects, which ranged over many disciplines, included: ethnographic studies of northern populations in Pakistan; archeological investigations in the Egyptian Western Desert; paleoanthropological studies of Later Miocene hominids in Pakistan; photographic documentation of the Buddhist cave paintings at Ajanta, India; historical investigation of the depletion of tropical forests in India; architectural survey of Indian temples; documentation of contemporary architecture; studies of the reproductive behavior of mugger crocodiles; studies of the history and movement of ancient ground waters using fission tracking procedures; and ecological and behavioral studies of the native bees of Pakistan.

During this year the Smithsonian conveyed \$1,040,000 equivalent in Pakistan rupees, the second installment of the U.S. contribution to the UNESCO campaign to salvage and preserve Moenjodaro, the 4,500-year-old Indus civilization city in Pakistan. This site, first discovered in 1921, is being eroded by highly saline groundwater and floods of the meandering Indus River. A groundwater-control scheme to lower the water table is in place and numerous other operations are underway.

### *Smithsonian Astrophysical Observatory*

Ever since Galileo Galilei turned his crude optical telescope on the heavens and found that the vague cloud known as the Milky Way was, in fact, "a congeries of innumerable stars grouped together in clusters," the advance of astronomical discovery has followed closely the development of new instrumentation. During the past twenty-five years particularly, the flight into space of detectors sensitive to infrared, X-ray, and ultraviolet radiation has created a vision of the universe that would astound even the remarkably prescient Galileo.

Although the direct relationship between new instrumentation and new discoveries is clearly recognized, it is no longer practical—or even possible—for the visionary scientist simply to patch together magnifying lenses in a wooden tube, walk into the evening dark, and discover unknown worlds. Not only have all the "easy" tasks of astronomy been accomplished, but society itself has become more complicated. In the late twentieth century, astronomy—all science, really—is no longer so much an individual enterprise as a collective activity, supported by the general public, responding to national goals, and answering broad questions.

More practically stated, the advance of modern astronomy—through the development of new instrumentation—requires copious funding, large teams of specialists, and, most important, many years of careful planning and design. Indeed, the time scale for most major instruments is a decade or more, especially if the instrument is to be a national or international facility.

Significantly, then, planning began this year at the Smithsonian Astrophysical Observatory (SAO) on several long-range projects that hold the promise of advancing astronomical knowledge. The

largest of these potential projects, and one that has inspired considerable effort by the observatory staff, is a proposed array of telescopes for observations of submillimeter-wave radiation. The submillimeter band of the electromagnetic spectrum is the only wavelength region yet unexplored from the ground. The need for sufficiently precise machining of antennas and, more important, for receivers capable of detecting such celestial radiation efficiently, has prevented development of this promising field until quite recently. Several single-dish submillimeter telescopes are now either under construction or in planning stages throughout the world, and an internal committee of observatory scientists recommended that SAO consider the more ambitious approach of an array of six dishes, each of six-meter diameter, with the dishes movable along several-hundred-meter-long arms of a Y-shaped set of tracks. The scientific possibilities of such an instrument are rich, ranging from the study of newly forming stars to the study of the dynamic phenomena taking place at the cores of active galaxies. The concept for the array, dubbed STAR for Submillimeter Telescopes Arrayed for high Resolution, is being reviewed by about forty scientists in the United States and Europe.

High spatial resolution, that is, the ability to discern distinct features of individual astronomical objects located close together is a goal of all observational astronomers. The resolving power of an instrument increases with the size of its aperture, but practical considerations of weight and cost limit the size of any single mirror or antenna. One means of increasing aperture is by employing the principle of interferometry in which the signals gathered by two or more telescopes are combined to produce a resolution equivalent to that of a single instrument with a diameter equal to the maximum distance between any two of the telescopes. The STAR array uses this principle in the submillimeter region of the spectrum; but, in the optical region, several SAO groups are also investigating means for achieving unprecedented resolutions through interferometers in space.

In space, above Earth's obscuring atmosphere, properly positioned and finely controlled optical instruments can, theoretically, achieve resolutions limited only by the quality of the telescopic system. The resultant resolutions may be as much as 10,000 to 100,000 times that possible with ground-based instruments. Several designs for such space interferometers have been suggested by SAO scientists: a linear array of mirrors mounted on a thirty-meter-long rigid structure; two mirrors orbiting up to ten miles apart

and feeding their separately received signals into a third "beam-combiner" satellite orbiting between them; and, small, modular interferometers that could fit into the Space Shuttle bay.

Obviously, these and other instrument development projects at SAO require imagination, innovation, ingenuity, and not a little institutional courage. Risks are inherent in all pioneering attempts: careers, funds, and time must be committed many years in advance to projects whose outcomes cannot be guaranteed—or even guessed at. Still, SAO has a long history of successful scientific risk-taking. The tradition of innovation in engineering and instrument-making can be traced from Langley's bolometer of the 1880s to Whipple's satellite-tracking cameras of the 1950s to the Multiple Mirror Telescope of the 1970s, a joint project with the University of Arizona. The concept of multiple-mirror arrays for optical telescopes, considered radical, revolutionary, and, to some, even foolhardy when first proposed, was recommended this year as the preferred design for the proposed National New Technology Telescope, a fifteen-meter-diameter optical giant. SAO's spirit of innovation certainly seems justified by this decision. In the next century, astronomers may look back on SAO's submillimeter-wave array or its optical interferometers as similarly vital milestones in the advancement of astronomy.

The development of new instrumentation for astronomy is only one part of the diverse research program carried out by SAO in collaboration with the Harvard College Observatory. Together under a single director, the two observatories form the Center for Astrophysics (CFA), where investigations of the joint staff are organized by divisions. Some highlights of research activity during the past year, by division, follow; for more detailed information on specific subjects, readers are invited to consult the bibliography of scientific papers by observatory scientists published elsewhere in this volume.

#### ATOMIC AND MOLECULAR PHYSICS

Because most of what is learned about celestial objects is gained by detailed studies of the light their atoms and molecules emit and of the modification of this light on its way to Earth, precise and comprehensive laboratory and theoretical studies of atomic and molecular properties are needed to understand the processes occurring in such objects and to interpret astronomical observations made with ground-based and satellite-borne telescopes. The Atomic and Molecular Physics Division carries out research in



theoretical and experimental physics and chemistry to provide these data and the basic understanding of the processes. Atomic and molecular physics research benefits from the interaction between theorists and experimentalists, and members of the division do research on processes common to the Sun, the interstellar medium, comets, and planetary atmospheres.

The light reaching Earth from a distant star begins its journey as a stream of X-ray or gamma-ray photons deep inside the hot interior of the star. As this light makes its way to the surface, it interacts with the atoms and ions in the star's outer layer. Some of these interactions, for example, a "recombination" in which the electron of an atom is captured by a positive ion to produce an "excited state," produce a distinctive light signal that can be used to infer the temperature, density, and chemical components of the star's atmosphere. In the laboratory, experiments are being devised so that the radiation emitted by excited systems can be used to identify and study corresponding processes in astrophysical plasmas.

The absorption of light by molecules in laboratory, atmospheric, or astrophysical gases is an important process because in many cases it can lead to dissociation of the molecule or to production of energetic forms of the molecule, which can influence other processes in the gas. Progress has been made this year in understanding the process in a quantitative way. For example, by making laboratory measurements at high resolution of the absorption of light by molecular oxygen at various pressures, we have improved knowledge of the strength of the absorption at particular ultraviolet wavelengths. These new measurements imply that significant changes must be made in the estimates of stratospheric concentrations of ozone, chlorofluorocarbons, and nitrous oxide. The implications for our understanding of the effects of human activity on the environment may prove of considerable importance.

#### *HIGH ENERGY ASTROPHYSICS*

The High Energy Astrophysics Division is primarily involved in the study of X-ray emission from celestial sources, including some of the most energetic and exotic objects in the universe, such as pulsars, neutron stars, and black holes. Because X-rays cannot pass through Earth's atmosphere, X-ray astronomy must be carried out from space.

At present, division members are heavily involved in the analysis of scientific data from NASA's two High Energy Astronomy

Observatories, the HEAO-1 and HEAO-2, the latter better known as the "Einstein Satellite." The Einstein observations represent the most sensitive X-ray data available, and ongoing research programs involve all types of known astronomical objects. A data bank has been established at SAO to allow full access to the Einstein data by the international scientific community.

A highlight of research this year was the discovery of X-ray emission from hot gas associated with the outer regions, or "haloes," of elliptical galaxies. As stars evolve, they liberate large amounts of gas, and the fate of this gas in elliptical galaxies has been a long-standing puzzle. Most astronomers believed that this gas simply flowed out of the galaxies in what is called a galactic wind. However, our X-ray observations have now shown that this is not the case; surprisingly, the gas is still contained in the galaxies. By processes still unknown (but possibly involving energy provided when stars explode as supernovae), the gas is heated to very high temperatures and glows in the X-ray band. Moreover, the X-ray data allow us to probe, for the first time, the underlying gravitational force required to hold this gas. Indeed, the haloes of elliptical galaxies must contain a mass equivalent to one trillion suns. However, most of this underlying mass is not contained in stars observed in visible light, nor is it contained in the X-ray-emitting gas we have observed. The nature of this invisible material, which accounts for most of the mass of the elliptical galaxies (and many other astronomical systems as well), is currently one of the great mysteries of astrophysics.

Division members are also working with the National Aeronautics and Space Administration (NASA) on the design and definition studies for the next large X-ray satellite, the Advanced X-ray Astrophysics Facility (AXAF). The fabrication of two sets of X-ray mirrors should allow the development and demonstration of those techniques eventually required to build the AXAF telescope. Completion of these test mirrors is scheduled for mid-1985, when a series of detailed X-ray tests will verify their performance. Improvements in the manufacture of X-ray mirrors and in the performance of X-ray detectors suggest that AXAF will be 100 times more sensitive than the Einstein Satellite.

Work continued on the Normal Incidence X-ray Telescope (NIXT) with design, testing, and initial fabrication of various elements, all geared to a 1986 rocket flight. NIXT uses a revolutionary approach to X-ray imaging involving alternating multiple layers of high and low absorption materials such as tungsten and carbon

and is capable of providing very high spatial resolution imaging and simultaneous spectroscopy for studies of the hot outer atmospheres of our Sun and other stars.

#### OPTICAL AND INFRARED ASTRONOMY

There are two main scientific themes to the research in optical and infrared astronomy: What is the large-scale structure of the universe, how did it get that way, and what will be its fate? How and when did galaxies form, how have they evolved and what can we learn about these processes from detailed studies of our own galaxy? To pursue these questions, division scientists rely heavily on ground-based telescopes, such as the facilities at the Fred Lawrence Whipple Observatory on Mt. Hopkins, Arizona, the site of the Multiple Mirror Telescope (MMT). Optical observations were complemented by infrared measurements made from the ground, NASA aircraft, and high-altitude balloons.

When viewed over scales as large as a billion light years, the universe appears frothy. Galaxies tend to congregate in clusters and sheets surrounding vast empty regions. This general picture, which has defied easy theoretical interpretation, was suggested most clearly by the Center for Astrophysics Redshift Survey, which was able to map out the distribution of 2,400 of the brighter galaxies, mostly in the northern sky. Because unexpectedly large structures showed up in the initial survey, it is now being extended deeper into space and into the southern sky. In the north, much time on the 60-inch Tillinghast Reflector at the Whipple Observatory is dedicated to this effort, which will take several years to complete. In the south, a collaboration with the Observatorio Nacional de Brasil is producing redshifts of the same quality as the northern data from Mt. Hopkins. These efforts should enhance the scientific value of the Redshift Survey, already considered by many to be the most important contribution to observational cosmology of the past ten years.

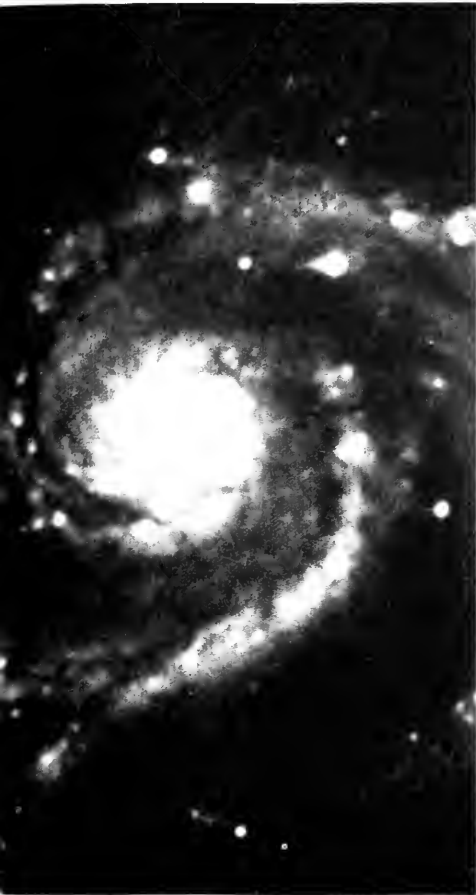
The Century Survey, a related project that has just begun, will ultimately provide a complete list of positions and magnitudes for all galaxies brighter than a carefully calibrated limit in a narrow strip running through the north galactic pole. This survey will go much deeper into space than the Redshift Survey, and the final catalog is expected to contain 100,000 galaxies. The importance of this effort was emphasized recently when division scientists showed that the principal earlier work (the Shane-Wirtanen counts) is inadequate for studies of the large-scale structure of the

universe because of previously unrecognized systematic errors present in the data.

An important result from the MMT was the identification of primordial clouds of gas that contain almost enough matter to form galaxies. This was part of a general effort to study the spectra of the most distant quasars using very high spectral resolution, an area where the MMT is the world leader. In this application, the quasars serve as bright "laboratory lamps" shining through the intervening clouds of intergalactic gas, whose characteristics may be deduced from the narrow (absorption) lines that they introduce into the continuous spectrum of the light from the quasar.

Several investigations focused on the structure and dynamics of star systems in our own galaxy. One such study concentrated on the oldest stars. Mostly the galaxy has a flattened disklike appearance, but there is also a population of stars in a more spherical, halo distribution above the galactic plane. These stars must have formed in the earliest stages of the formation of our galaxy itself, and in their atmospheres is preserved information about the abundances of the chemical elements present ten to fifteen billion years ago. A survey identified a few hundred new halo stars, more than doubling the number known previously. This identification has already led to a new determination of the rotation of the galactic disk and, for the first time, to a precise determination of the velocity needed by an object to escape from the galaxy. These results are important because they will help determine the total mass of the Milky Way.

Four major programs in infrared astronomy were pursued. In the first, a small, helium-cooled infrared telescope has been constructed for space flight aboard the Spacelab 2 mission of the Space Shuttle, now scheduled for April 1985. This instrument will be used to map the sky for diffuse infrared sources. In the second program, a one-meter balloon-borne infrared telescope is used, for example, to discover star-forming regions in the galaxy. The third program is a design study for a three-meter balloon-borne telescope for far-infrared and submillimeter astronomy. The fourth involves the use of an experimental two-dimensional infrared camera for ground-based observations of star-forming regions, galaxies, and planetary nebulae. A similar camera proposed by SAO, in collaboration with other organizations, was selected for design study as one of three instruments to fly on NASA's Space Infrared Telescope Facility.



This image of a spiral galaxy was produced with a light-sensitive electronic detector known as a charge-coupled device, or CCD, attached to an optical telescope at the Whipple Observatory in Arizona. The Smithsonian has been a pioneer in the development of these detectors. (Photograph by Rudolph Schild)

A 102-centimeter balloon-borne infrared telescope designed by the Smithsonian Astrophysical Observatory for photometry, spectroscopy, and high-resolution mapping of star-formation regions in the galaxy was launched from Texas in April 1984 as part of an on-going program of balloon astronomy.

Division scientists also were involved in gamma-ray astronomy, using the ten-meter reflector at the Whipple Observatory to search for high-energy gamma-rays from several sources and carrying out design studies for a very large gamma-ray telescope in space that would make use of the expended external tank of the Space Shuttle as part of the Space Station program.

#### PLANETARY SCIENCES

Members of the division study the planets and small bodies of the solar system in three ways: by telescopic observation, by theoretical analysis, and by examining samples of extraterrestrial materials in the laboratory.

The observation program centers on the Oak Ridge Observatory in Harvard, Massachusetts, which is well suited for determining the exact orbital paths of comets and asteroids in the solar system. To do this requires that positions of the bodies be determined very precisely on a number of different nights. Travel costs and the intense competition for telescope time make it impossible to use the larger western telescopes for such observations.

The Oak Ridge program of regular observations is coordinated with the work of the International Astronomical Union's Minor Planet Center and Central Telegram Bureau, both of which are directed by a division member. These facilities verify observations of comets and asteroids, compute their exact orbit, and disseminate this information to institutions around the world in a timely way. In the last year, 125 *IAU Circulars* and 900 *Minor Planet Circulars* were distributed. About 200 newly discovered asteroids were formally assigned numbers, and improved orbits were determined for about 1,000 other new objects. These functions are self-supporting through an annual contribution from the IAU and subscriptions purchased by professional and amateur astronomers. This year particular effort has been put into the establishment of a computer service, which allows subscribers to see the *IAU Circulars* on the day of issue, and carry on other transactions with the Central Telegram Bureau and Minor Planet Center, via computer and telephone.

Data from the NASA Voyager spacecraft contributed to several observational programs as well. A division member who is also a member of the Imaging Team of the Voyager mission to the outer planets investigated a variety of phenomena observed by Voyager on Jupiter, Saturn, and the satellites of these planets. An example

of these is the observation that Europa (one of Jupiter's four largest satellites; about the size of Earth's moon) appears to be actively erupting water at its surface. Europa is thought to contain about 5 percent water, in the form of an ice crust about eighty kilometers thick. Apparently heat from the satellite's interior melts the base of the ice crust and erupts the water in surface "volcanoes," in a manner closely analogous to the melting of rock and the eruption of lava on Earth. Another division scientist used Voyager photographs to complete a preliminary geological map of an area on the surface of the Jupiter satellite Ganymede.

Theoretical studies in the division included an investigation of the way comets decay and, in some cases, break up. Comets are masses of snow and dust a few kilometers in size: as their orbits carry them near the Sun, the warmth vaporizes the snow; streams of escaping vapor can act like rocket engines, changing the orbital path of the comet. Eventually every comet's snow is completely vaporized away, but there is still a question of what is left: A coherent asteroid? Or an incoherent collection of pebbles and dust that disperses in space?

The detailed properties of meteorites and lunar samples were studied in the laboratory, using microscopic and microanalytical techniques. Meteorites contain a cryptic record of events and processes associated with the origin of the solar system, and even pre-solar system history. Lunar samples contain an equally cryptic record of the earliest internal evolution of a small planet. The meteorite research centered on the origin of chondrules, tiny igneous droplets that are abundant in the most primitive class of meteorites. These objects were somehow melted and partly vaporized at the time when the solar system was being formed. Such processes may have occurred when aggregations of presolar interstellar dust fell into the primordial disk of gas that gave rise to the solar system: as the aggregations plunged through the gas they were heated by gas drag, much like meteors in Earth's upper atmosphere, and melted into droplets.

Laboratory determinations were also made of the concentration of radioactive isotopes in meteorites collected in Antarctica by the National Science Foundation (NSF) Polar Program, and also in Antarctic ice samples. The levels of these radioactive isotopes reveal how long the meteorites have lain on or in the ice since they fell, and how long it has been since the ice formed (fell as snow) on the polar ice cap. A division member has participated in two of the NSF meteorite-collecting expeditions to Antarctica.

Radio and Geoastronomy Division staff pursue a broad range of research topics, including tests of Einstein's theory of general relativity, the physical structure of other planets, chemical composition of clouds in space, the processes by which stars are born, the motions of radio stars, physical properties of very distant radio stars, extragalactic radio sources, measurements of continental drift, irregularities of the rotation of Earth, research on atomic clocks, and the development of new instrumentation.

Two important efforts are now under way to develop powerful new instruments for astronomical research. First, a Centerwide committee investigated the desirability and feasibility of an array of six radio antennas operating in the submillimeter portion of the radio spectrum. The design calls for six antennas, each with diameters of six meters, spaced up to several hundred meters apart along the arms of a "Y" configuration. Necessarily located on a high mountain to reduce the interference from water vapor in the atmosphere, the array's resolution will be better than one second of arc, or more than ten times better than any other instrument under construction or planned for use at submillimeter wavelengths. Because the submillimeter array would operate at what is called "the last frontier of ground-based astronomy," it promises rich scientific opportunities, including: probes of regions of star formation, analyses of galactic structure, investigations of the cores of quasars and active galactic nuclei, and studies of objects in the solar system.

Second, the ability to place optical instruments in space will allow an angle-measuring instrument of unprecedented accuracy. Such an instrument, called an optical interferometer, appears feasible using currently available technology. The various configurations now being investigated all offer enormous resolution advances over ground-based telescopes, whose resolution is limited by fluctuations in Earth's atmosphere. For example, the 1,000-fold improvement in resolution over a ground-based telescope suggests that an optical interferometer operating in space would allow improved determination of astronomical distances, estimates of star masses, discovery of other planetary systems, and exquisitely accurate tests of Einstein's general theory of relativity. The development of such a system is currently supported by the construction of a ground-based optical interferometer and related laboratory work.

Research on hydrogen masers and experiments using them for time and frequency coordination and testing theories of gravitation



and relativity continued. Two masers were completed and delivered to the U.S. Naval Observatory in Washington, D.C., where they are now designated as "Master Clocks 1 and 2." The stability and time-keeping accuracy of these clocks exceed any previously made; indeed, their accuracy,  $\pm 0.5 \times 10^{-9}$  seconds per month, is at least as good as that available from the entire U.S. Naval Observatory ensemble of some twenty-five cesium-beam clocks.

Research on electrodynamic interactions between long orbiting wires and the ionosphere continued. In particular, Shuttle-borne electrodynamic tethers were studied to determine the tether's ability to draw current from the ionosphere and to generate, by consequence, a substantial amount of electric power in space.

### *SOLAR AND STELLAR PHYSICS*

The development of new instrumentation, coupled with advances in theoretical physics and with the improvement of computation techniques, have altered modern studies of solar and stellar physics in two striking ways.

Stars are no longer seen as isolated spheres of gas quietly drifting through space. Their atmospheres are better described as cauldrons of bubbling, magnetic gas being buffeted and blown into space by waves and surges from the interior. Stars are now seen as "open" systems that condense from the interstellar gas and dust, then burn their nuclear fuel—often acquiring peculiar chemical compositions in the process—and ultimately return most of their material to space, either gradually, as in winds and breezes, or violently in explosive novae and supernovae.

At the same time, solar and stellar astronomers have come to realize that many of the activities formerly seen only on the Sun's surface, and in the Sun's outer atmosphere—the "chromosphere" and "corona" that were originally discovered during eclipses—can now be detected in the signals from other stars. This year, for example, observations by division scientists using the International Ultraviolet Explorer (IUE) Satellite led to the first detection of a stellar "flare" from a giant star. For many years, solar flares have been observed in the intense magnetic fields of sunspots, and flares had been known among the smaller, dwarf stars; however, this observation of stellar flares in a giant, evolved star, has added another link in the "solar-stellar connection." Other programs with the IUE include ultraviolet observations of faint exploding stars and the remnants of supernovae, as well as the monitoring of emissions

that reveal activity cycles similar to the twenty-two-year cycle of our Sun in several cool stars. In addition, collaborative ground-based studies with researchers at the Mt. Wilson Observatory have monitored calcium emission from the chromospheres of Sun-like stars. A survey of such emission in a variety of cool dwarfs has led to the conclusion that the magnesium and calcium emissions are dependent, not only on the star's mass, but on its rotational speed—for reasons that are not understood.

Stellar observations this year were remarkable for the variety of instruments they called into play: from studies of chemical abundances in the oldest members of the galaxy—the globular cluster stars—with the ground-based telescopes of the Whipple Observatory and the Mt. Wilson Observatory, to the observations of a young supernovae remnant in a neighboring irregular galaxy with the Einstein Satellite. And a coordinated program of ground-based observations of the brightness and polarization of the light of the supergiant red star Betelgeuse (the brightest star in the Constellation Orion) was initiated to provide data for diagnosing this star's variations. Although they are subtle, these variations may be symptoms of fundamental processes by which such stars return their matter to space as their cores evolve toward a super-condensed state. The preliminary results suggest that the heightened atmospheric activity in Betelgeuse may lag the optical brightening by one-tenth of the six-year period; and, if confirmed, this lag would be an important clue to the nature of the motions in the star's outer layers.

For decades, the high temperature of the Sun's corona has been recognized as a key feature of the Sun's atmosphere, requiring a vast amount of heat to be supplied by waves from the cooler layers beneath. Recently, the outward flow of the corona has been recognized as an equally challenging enigma. Clues are being sought in the nature of the magnetic fields of the Sun.

Like Earth, the Sun has a magnetic field reaching out from its interior. Unlike Earth's field, the Sun's is widely variable (with a full cycle of reversal in twenty-two years) and it is swept aside or brought together here and there by the motions of the Sun's ionized gas. This turbulent activity is thought to be generated by the "boiling" motions of the deep layers, and it is accompanied by eddies and streamers, which move outward at supersonic speeds. The cause of these rapid motions is a mystery, and the mystery was deepened this year when, for the first time, they were observed well down inside the dark gaps in the corona

known as "coronal holes." (These observations were made by SAO scientists in collaboration with the High Altitude Observatory by means of an ultraviolet coronagraph that was carried aloft on a rocket.) The outflow of coronal material was traced to within 0.5 solar radii of the surface, pointing to a source of acceleration whose identity will be the goal of future observations.

Some of the energy required to maintain the hot corona is released in the neighborhood of coronal "bright points," which appear to be small active regions associated with locally intensified magnetic fields. These regions are being studied with data from Skylab as well as a program of simultaneous observations in optical radiation with the Solar Tower Telescope at Sacramento Peak Observatory and radio interferometry with the Very Large Array (VLA). These observations are providing maps of unprecedented spatial detail as well as rapid time resolution and are expected to provide insights to the heat supply of the corona.

Division scientists have constructed a simulation of the solar spectrum incorporating seventeen million atomic and molecular transitions, and this tool has been applied to another long-standing enigma concerning solar temperature. However, this mystery concerns the coolest, rather than the hottest, region of the Sun. For nearly a century, it has been recognized that the temperatures of both the solar interior and the corona reach millions of degrees, even though the temperature of the surface layers remains a relatively cool 6,000 K. Clearly, at some intermediate level the temperature must reach a minimum, and the depth of this minimum is a clue to the energy balance of the Sun's outer layers. But the precise value of the minimum has been an elusive quantity and different observational techniques seemed to imply different values. The agreement was greatly improved this year when the newly synthesized spectrum was used as a model for interpreting the solar observations. For the first time, data from the ultraviolet, the visible, and the infrared agree, and this new solar profile is ready for interpretation by theoreticians.

Progress in astrophysics has invariably been stimulated by the use of new observational instruments, and with this in mind, division scientists are developing several advanced detectors. This year, a new version of the speckle interferometer, technically called the Precision Analog Photon Address detector, and known as the "PAPA," was built, tested in the laboratory, and taken to remote sites for observing runs on the Steward Observatory 90-inch-diameter telescope, the Whipple Observatory MMT, and the

University of Hawaii 88-inch telescope. Interpreting the data from this device requires an intensive series of computations, and these early field tests produced six "firsts": images showing the rotation of the asteroid Vesta, and new companions to the stars T Tauri, Mu Cassiopeia, and Alpha, Delta, and Gamma Orionis.

Engineering studies of large interferometers for various space platforms were also carried out, and they suggest that, perhaps more than any other major civilian science project, such interferometry would depend on the servicing capability of a space station.

Historical research in the division touched on the lives and the many contributions of women at the Harvard College Observatory during the years 1875–1925. Work also continued on the annotated census of Copernicus' *De revolutionibus*, and fewer than twenty (of about 580) copies remain unexamined. Finally, a study of Vincent van Gogh's night paintings showed that they have a strong element of astronomical reality.

#### THEORETICAL ASTROPHYSICS

The Theoretical Astrophysical Division carried out research on a diverse range of astrophysical phenomena, with studies often applied to the support and interpretation of observational data. Division members frequently collaborate with scientists in other institutions and with members of other divisions in their research as well as contribute significantly to educational programs.

The research of the division is largely concentrated on studies of the extreme states of matter, radiation, magnetic fields and gravity, and their fundamental roles in determining the observed structure of objects in the universe. The mode of attack on such problems is a combination of pure analytical techniques and numerical modeling with computers. Particular applications have included: interstellar clouds, accretion disks, stellar winds, planetary formation, star formation, globular clusters, X-ray sources, and inflationary cosmologies.

One noteworthy example of research in the division concerned the postcollapse evolution of globular clusters. Globular clusters are beautiful astronomical objects, containing about a million stars in a roughly spherical distribution, relatively sparse in the outer layers, but becoming quite dense in the center. The special shape

of such clusters is largely determined by gravitational encounters between the individual stars, especially in the central core. These encounters cause the cluster to become ever more centrally concentrated; in fact, simplified analytical estimates predicted that the central clustering of stars must become infinitely dense at some time—a catastrophe known as “core collapse.” Furthermore, from these studies it was clear that many of the globular clusters now seen should have already undergone core collapse. It was generally agreed that various physical effects, such as formation of binary stars, would prevent any real catastrophe, but, despite much analytical work, no one was able to state unambiguously just what a “postcollapse” globular cluster was supposed to look like. Nor could any existing computer program answer this question, since each was designed to treat only a portion of the relevant physics. However, a division member, using a clever matching of several independent computer programs, was able to overcome their individual limitations and to simulate numerically both the core collapse and the subsequent postcollapse phase. Preliminary results indicate that the theoretical structure of postcollapse globular clusters is consistent with the properties of observed globular clusters, thus removing a disturbing gap in our understanding of these objects.

Another investigation concerned one of the most exciting recent theories in cosmology, the “new inflationary universe.” Some fundamental theories of elementary particle physics have suggested that the universe underwent a phase of rapid expansion at a very early time in its history, indeed, only microseconds after the Big Bang itself, a time when particle energies were enormous. This expansion, or “inflationary” phase, explains several previously inexplicable facts about our universe, such as its impressive uniformity. In principle, the properties of the new inflationary cosmology might also be used to predict the deviations from uniformity in the early universe, and thus to determine the very fluctuations in density out of which galaxies and other large-scale structures formed. This would provide a critical test of such inflationary theories as well as of the underlying elementary particle theories. To carry out such a program, one division member is using a simplified model of quantum field theory to predict the nature of the initial fluctuations. This eventually will be supplemented by a detailed analysis of the subsequent development, by gravitational instability, of the fluctuations to the point where they become observable structures, such as galaxies or clusters of gal-

axies. In this project, one can see the surprising unity of theoretical astrophysics in which an explanation of the largest structures in the universe is derived from properties of the smallest elementary particles.

### *Smithsonian Environmental Research Center*

Basic scientific research aimed at understanding the processes occurring in the environment and their influence on biological systems and organisms has been the principal activity of the Smithsonian Environmental Research Center (SERC) during the first year since its formation administratively on July 1, 1983. This research is long-term and emphasizes both laboratory and field-oriented studies in three major areas: Regulatory Biology, Environmental Biology, and Radiocarbon Dating.

SERC has two principal facilities: a 50,000-square-foot laboratory at Rockville, Maryland, and 2,600 acres of land with a small laboratory and some support buildings at Edgewater, Maryland. The Edgewater property constitutes a unique estuarine research opportunity, comprising nearly one-third of the watershed surrounding the Rhode River Estuary, a subestuary of the Chesapeake Bay located a few miles south of Annapolis, Maryland.

These two facilities are separated geographically by forty-five miles. A major effort has been made during the year to inventory all space, equipment, support, and administrative services and research activities of SERC. Following an intensive iterative process, the first phase of a Master Plan for the consolidation of facilities and research programs has been completed. The initial priority was to ascertain the feasibility of locating all of SERC activities at Edgewater, and then to select a suitable site for the construction of permanent quarters. A site near the present complex of existing buildings has been selected for construction of a facility that will not only enhance laboratory-oriented research, but also will not impact unfavorably upon the long-term field sites under study or detract from the aesthetic qualities of the estuarine setting.

The Center also maintains an educational program that includes graduate students, postdoctoral fellows, undergraduate work/learn students, and public educational activities. The public education aspects emphasize teacher- and docent-led tours and activities. Docents guide adult and family groups on a two-mile Discovery

Trail through outdoor research areas. A pamphlet keyed to signs on the Discovery Trail makes the walk self-guiding for visitors who are not on a scheduled tour. A recently developed soundtrack slide show describes the research at both Rockville and Edgewater.

Forty-two regular scientific seminars were held at both Edgewater and Rockville in fiscal year 1984. This is an ongoing educational activity of SERC, serving to inform the scientific public about SERC research activities as well as to inform SERC staff about the work of colleagues in universities and other governmental laboratories.

SERC staff members were frequently invited to present seminars and lectures to universities and laboratories and to participate in international and national symposia and scientific meetings. The staff also routinely served as reviewers for grant proposals to federal agencies and as reviewers of manuscripts submitted to peer-reviewed scientific journals.

Research is done by staff scientists who represent a diverse number of disciplines, including biology, chemistry, physics, mathematics, and engineering, in the framework of two divisions: Regulatory Biology and Environmental Biology. The principal product of SERC, its research publications, could not be achieved without the continuing collaboration between its scientific and support staffs. The scientific staff this year particularly wishes to acknowledge the assistance received from technicians, students, secretaries, and administrative staff under the sometimes difficult and unsettling conditions of a newly formed bureau.

#### *ACTIVITIES AT ROCKVILLE*

##### *Regulatory Biology*

Regulatory Biology primarily emphasizes laboratory research to determine how environmental stimuli such as light, temperature, and various chemicals are perceived by plant cells and microorganisms. Studies are made of the mechanisms and processes regulated by these stimuli and the specific means by which they control growth and differentiation.

Plants sometimes have a control mechanism that enables them to detect the length of the day. This process, photoperiodism, or the control by light (photo-) of the seasonal reproduction (-periodism) in plants, is affected by the spectral quality of sunlight. Some plants require daylengths greater than some critical minimum in

order to flower and are called long-day plants, while others require daylengths shorter than some critical maximum and are called short-day plants. Nonphotoperiodic plants are called day-neutral and reproduce at some fixed time relative to when germination occurred or to a change in temperature (thermoperiodic).

Many economically important crops, such as cereals (with the sole exception of sorghum), belong to the long-day group. Experiments with barley have shown that the response to increasing daylengths is markedly stimulated by including light that is just beyond that which the human eye can detect (called far-red or near-infrared light). It is believed that the basis for the photoperiodic control in these plants is the coincidence of a light signal with an internal biological clock, which determines the sensitivity of the plant to the presence of far-red light. Thus, not only must light of the proper spectral quality be present, but it must be present at the right time in order to promote flowering.

Once the proper light signal is perceived by a plant, a series of biochemical reactions is initiated in the leaf that ultimately results in the production of some translocatable signal that transforms the shoot apex into a reproductive structure, a flower. This light signal that strikes the leaf is absorbed by a pigment, phytochrome, that is present in plants that are capable of forming the green pigment chlorophyll used for photosynthesis.

Preliminary experiments carried out several years ago at the Smithsonian by Dr. M. Ziv, a visiting scientist from the Hebrew University in Israel, suggested that in peanut seedlings, the elongation of the female supporting structure (peg), which carries the developing peanut below ground, is controlled by light. In addition, development at the end of the peg of the ovule, embryo, and finally mature pod is controlled by light. She suggested the peanut peg might be an analogous model system to study signal transmission in comparison to flowering.

This year the maturation of the peanut embryo has been demonstrated to be strictly controlled by phytochrome located in the maternal, ovular tissue and not in the embryo itself. Thus, like the photoperiodic signal, something produced in one tissue in response to light must be translocated to another tissue to control development. The localization of this phytochrome in peanut ovules and embryos is being investigated by immunocytological staining to determine whether the interorgan distribution of phytochrome can explain the observed light regulation of this response.

The chemical nature of the signal produced in the leaves that



brings about flowering is unknown. It moves in the phloem transport system from leaves to the plant apex. Phloem sap was collected from *Perilla* (Asiatic mint) leaves exposed to increasing numbers of inductive short days. In *Perilla* it takes a minimum of seven short days to induce some flowering. Extracts of this phloem sap have been made. One peak in the neutral ethyl acetate fraction is present in phloem from flowering plants but is not present, or is in very low amounts, in vegetative phloem sap. This peak appears between three and six days after the beginning of inductive short days. This material is being accumulated by high-pressure liquid chromatography and will be tested for its effect on flowering when added to vegetative plants.

Extraction experiments using duckweed (*Lemna*) have generated several peaks of activity from *Lemna gibba* G3 plants that have flower-inducing activity when tested on *Lemna paucicostata* 151. One of these active peaks was identified collaboratively with Professors Takimoto and Takahashi of Japan as nicotinic acid. The remaining peaks have not yet been identified. Experiments have begun to measure nicotinic acid in flowering and vegetative plants.

When *Lemna gibba* G3 is grown under long days either on a complete E (modified Hoagland's) medium or on an ammonium-ion-free half-strength Hutner's medium to which ten micromoles of salicylic acid have been added, excellent flowering of 75–80 percent occurs. If plants are kept on these media for seven days and then are transferred, still under long days, to an ammonium-ion-free half-strength Hutner's medium without salicylic acid being present, the long day-induced flowering persists much more than the salicylic acid-induced flowering. (This transfer medium used from the beginning would bring about almost no flowering.) This result suggests that salicylic acid does not exert its effect by causing the formation of the flowering stimulus in the same way long-day induction does. Salicylic acid is known to be quickly inactivated and sequestered after being taken into plants. It probably never reaches the meristems that are directly exposed to the medium. Therefore, we conclude that salicylic acid sets into motion some change that can mimic the effect of the flowering stimulus and can lead to flower formation.

In the medium lacking salicylic acid, if the phosphate concentration is increased ten to twentyfold, flowering of 40 to 60 percent occurs. Suboptimal concentrations of salicylic acid interact synergistically with phosphate to promote flowering. Salicylic acid probably stimulates phosphate uptake or alters phosphate metabolism.

Experiments on the uptake of carbon-14 labelled salicylic acid continue. A peak at the origin on thin layer chromatography plates from the acidic ethyl acetate fraction becomes very prominent with uptake periods of longer than six hours. Earlier studies had overlooked this material. It is being assayed to determine if it is a bound form of salicylic acid and whether it has flower-inducing activity.

Last year evidence was reported from radioimmunological assays that plant extracts contain insulinlike materials. This year two different insulin bioassays also yielded good activity. However, this insulinlike material is different from any mammalian insulin that has been tested. In addition, somatostatin-like activity has been found in extracts of both duckweed and spinach. Somatostatin is an animal peptide hormone that regulates release of insulin and glucagon from the pancreas in man.

The light-absorbing pigment, phytochrome, that perceives these stimuli is a protein, and it can be isolated and purified from dark-grown rye seedlings. It can exist in two relatively stable forms. On purified material the light activation process can be studied under controlled conditions. An area on the surface of the protein molecule changes shape after exposure to light. This area has been proposed to be the chemically active site involved in the first step of phytochrome-mediated responses. The binding of a number of defined chemical probes to this site has been examined this year. Both hydrophobic and ionic groups become more exposed to the exterior of the protein after exposure to light. However, the chemical function of this site has not yet been identified. Phytochrome molecules isolated from both oat and pea seedlings contain a similar site on the protein surface.

It has long been known that light energy striking red or blue-green algal cells is absorbed by accessory pigments, phycobiliproteins, transferred to photosystem II of photosynthesis and then distributed to photosystem I. Characterization has continued of the oxygen-evolving, phycobilisome-photosystem II particles that were isolated for the first time last year from the red alga *Porphyridium cruentum*. In both red and blue-green algae, the phycobilisomes exist on the external (stromal) surface of the photosynthetic thylakoid lamellae. Grana stacks and chlorophyll a/b complexes do not exist in these organisms. Thus, the seemingly less complex thylakoid structure in *Porphyridium* and the direct energy transfer pathway from phycobiliprotein to photosystem II provide a promising

system for exploring the structural relationship of photosystem II with its accessory pigment, phycobilisome, antenna.

The isolated particles have very high oxygen evolution rates and a greatly reduced chlorophyll content. The average ratio in the particles is sixty chlorophyll molecules per phycobilisome as compared to about 1,200 chlorophyll molecules per phycobilisome in the unfractionated thylakoid membranes. Photosystem I is greatly reduced in these particles. Electron microscopic observations confirmed that the particles are relatively homogeneous and that typical thylakoid membranes are absent. The electron microscopic fields showed phycobilisomes, often in clusters of two or three, that had small appendages seemingly at the base of the phycobilisomes. Thus, these particles from *Porphyridium* are different from the other photosystem II-enriched particles in that they have one of the highest oxygen-evolving rates thus far observed, and unlike other preparations, they have functional coupling of the intact phycobilisome with the photosystem II thylakoid system.

Phycobilisomes from the blue-green alga *Anacystis nidulans* were studied for the wild type and several spontaneous mutants were selected for improved growth in far-red light. By electron microscopy, the thylakoid area of wild type and the 85Y mutant, as well as the phycobilisome size and morphology, were determined. The size of phycobilisomes of wild type cells were larger than those of the 85Y mutant. The number of phycobilisomes per cell, calculated from the phycobiliprotein content and phycobilisome size, was about the same in wild type grown in white light and 85Y mutants grown in far-red light. However, the number of phycobilisomes per unit area of thylakoid increased by almost two-fold in cells grown in far-red light.

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 the thylakoids are made in the chloroplast on chloroplast ribosomes. These chloroplast-synthesized polypeptides are translated from messenger ribonucleic acids (mRNAs) that are coded for by the chloroplast genome. Chloroplast ribosomes are attached to the thylakoids, but are also present in the chloroplast ground substance (stroma). Spinach is being used to investigate the possibility that the thylakoid-bound ribosomes are specifically synthesizing polypeptides that are cotranslationally added to the thylakoids.

Work is continuing on the site of biosynthesis and addition to

the thylakoids of the polypeptide that is the reaction center of photosystem I (apo CP I). It is an integral membrane polypeptide. mRNA for apo CP I was found to be largely associated with thylakoids. Also, thylakoids with attached ribosomes synthesized apo CP I. The newly synthesized apo CP I remained with the thylakoids at termination of protein synthesis. Synthesis of apo CP I was determined by immunoprecipitation of newly synthesized radioactive apo CP I with specific antibody against apo CP I. However, only a small portion of specific immunoprecipitable radioactive protein migrated on acrylamide gel electrophoresis in the position of authentic apo CP I. Therefore, confirmation of localization within the chloroplast of apo CP I mRNA, and of synthesis of apo CP I by thylakoids with bound ribosomes, is being sought. For this purpose a portion of the apo CP I gene (apo CP I probe) has been isolated from a cloned segment of chloroplast DNA containing the gene for apo CP I. The apo CP I probe will be used to determine the sub-chloroplast localization of apo CP I mRNA, and for isolation of apo CP I mRNA.

Work on the site of synthesis, and on the addition of polypeptides to thylakoids has been extended to a second integral thylakoid polypeptide, the polypeptide of the proteolipid component of thylakoid translocating ATPase (proteolipid). Proteolipid was isolated from thylakoids and antibody (anti-proteolipid) was prepared. It was found that thylakoids with bound ribosomes synthesized polypeptide that was immunoprecipitated with anti-proteolipid. The result indicates that at least some of the proteolipid is synthesized by thylakoid-bound ribosomes.

In the fungus *Neurospora crassa*, blue light is required for the induction of carotenoid pigment biosynthesis. Phytoene, a colorless precursor of the carotenoid pigments, accumulates in dark-grown cultures. Hence, it has been postulated that enzymes after phytoene in the pathway are regulated by light. It has also been shown, however, that enzymes before phytoene in the pathway are photo-regulated.

The conversion of isopentenyl pyrophosphate (IPP) to phytoene in *Neurospora crassa* requires both a soluble and a particulate fraction. The soluble fraction catalyzes the formation of geranylgeranyl pyrophosphate (GGPP) from IPP. This activity is drastically reduced in an *albino-3* mutant. The particulate fraction catalyzes the conversion of GGPP to phytoene. In a wild-type strain of *Neurospora*, a blue-light treatment of the mycelia causes a tenfold in-

crease in the particulate enzyme activity, while the soluble activity increases twofold.

This year the photoregulation of GGPP synthesis has been studied in more detail. The conversion of IPP to GGPP requires at least two enzymes, IPP isomerase and GGPP synthetase. To assay GGPP synthetase it is necessary to separate it from the isomerase. This has been accomplished using hydroxylapatite chromatography. Also by this procedure, GGPP synthetase has been separated from farnesyl pyrophosphate (FPP) synthetase, an enzyme that catalyzes the formation of FPP which is used as a substrate for sterol synthesis.

Using hydroxylapatite chromatography, it was found that an *in vivo* blue-light treatment causes an increase in GGPP synthetase activity without any apparent effect on FPP synthetase or IPP isomerase. Furthermore, GGPP synthetase activity is present at a much lower level in an *albino-3* mutant than in the wild type, while the other two enzymes were present at wild type levels.

The discomycete fungus *Pyronema domesticum* forms apothecia (reproductive structures) in white light in closed Petri dishes and in the absence of circulating air in an incubator. Ultraviolet-A radiation (320 to 420 nm) at an intensity of 104 microwatts per square centimeter was found this year to be the effective region of the white light that induces large numbers of apothecia in sealed flask cultures. Mycelial growth was inhibited at intensities that induce apothecia formation. Exposure to intense ultraviolet-A radiation (4030 microwatts per square centimeter) results in death of the mycelium. Apothecia was found to form also in the dark in stagnant air in the presence of activated charcoal. Apparently, volatile substances released by the fungus are inhibitory to apothecia formation. This inhibition is removed by adsorption to the activated charcoal but the chemical nature of the inhibitor is unknown.

Mature sporangiophores (Stage IV) of the fungus *Phycomyces blakesleeanus* give weak and erratic gravitropic responses when placed in a horizontal position. However, it was found that if sporangiophores are exposed horizontally to gravity during younger developmental stages (Stages II and III) in which the cells do not elongate or give a gravitropic response, subsequent gravitropic responses observed in Stage IV have a shorter and more uniform latency. This early exposure to altered gravitational orientation causes the sporangiophore to develop a gravireceptor as it matures to Stage IV and resumes elongation.

Sporangiophores are allowed to develop this increased sensitivity by balancing a blue-light-induced phototropic response against the gravity-induced geotropism. An optical microscopic technique was developed to observe the spatial relationship between the vacuole and protoplasm of a living sporangiophore once this photogeotropic equilibrium was established. The thickness of the cytoplasmic layer is thinner on the upper surface of the cell than on the lower surface. It is believed that this increased cytoplasmic thickness is involved in developing increased geotropic sensitivity and causes increased growth on the lower side of the sporangiophore with a subsequent positive geotropic response.

### Environmental Biology

The opening of the pores on leaves (stomates) that allow for the entry of carbon dioxide for photosynthesis has been thought to be regulated by blue light or red light that is effective for photosynthesis. Newly obtained data indicate that the far-red portion of natural sunlight interacts with an internal rhythm of the leaves to control pore size. This far-red light has been found to be most effective when other qualities of light are simultaneously present. Thus, the amount of far-red light present is apparently the significant cue enabling plants to carry out maximum rates of photosynthesis under natural conditions.

Measurements of the carbon dioxide gas conductivity controlled by the stomata (pores) on primary leaves of bean seedlings demonstrated that phytochrome modulates light-induced stomatal opening. Removal of the far-red absorbing form by exposure to far-red light decreased the time required to reach maximal opening following a dark to light transition, as in sunrise. Removal of the far-red absorbing form of phytochrome also decreased the time required to reach maximal closure following a light to dark transition, as in sunset. Removal of the far-red absorbing form of phytochrome is brought about by greater quantities of far-red light in the sunlight spectrum relative to the red portion of the spectrum. Sufficiently high far-red to red ratios of sunlight occur at sunrise and at sunset.

The photosynthetic productivity of plants is regulated by the amount of carbon dioxide available. The absolute carbon dioxide concentration measured above the tropical forest on Barro Colorado Island in the Republic of Panama indicates that there is an annual increase of 1.5 parts per million, a value that correlates

well with values found at other global stations. Measurements of carbon dioxide exchange and monitoring of amounts of photosynthetically active radiation, temperature, and wind velocity have been carried out for one year on Barro Colorado Island, sponsored by an Environmental Science Program grant. These data will comprise the formation of baseline data to ascertain the effects of changes in these parameters with other continuing ecological studies on the island.

Initial carbon flux rates, using gas measurements and eddy correlation techniques, indicate a 20 percent greater productivity rate in the tropical forest than those measured by conventional leaf litterbox collection techniques of gathering leaves, fruits, and twigs that drop from trees or visual estimation techniques of ascertaining the extent and change of the forest leaf canopy. The parameters measured were found to have a very high correlation coefficient with the carbon flux rates measured for this initial year of operation. The measurements will continue to test the validity of these correlations of growth as influenced by carbon dioxide concentrations available to the forest canopy.

Plants occupying coastal wetlands have to overcome several stressful environmental factors, one of which is salt. The dominant plant species in this ecosystem, *Spartina alterniflora* (Common Cordgrass), has the ability to tolerate salt concentrations three to four times that of seawater. The typical response to such high salt levels over many seasons is for the plants to be diminished in height by an order of magnitude.

In attempting to understand the physiological basis for this dwarfing response, the reaction of the photosynthetic apparatus of this plant to salinity and other factors has been examined. The working hypothesis is that adaptations to high salt concentrations, lack of oxygen, and perhaps other characteristics of this plant's habitat are at least partially an adaptation to water stress.

When the roots of *S. alterniflora* were flooded with water that contained gradually increasing salt concentrations over a period of twenty-four hours, the response of the plant's photosynthetic apparatus was different from a rapid, large increase in salinity. When the step increase was large (i.e., from low salinity to seawater salinity) there was an immediate response in the stomata, which limited the supply of CO<sub>2</sub> to the intercellular spaces. When the step increases were small, and the plant was given time to adjust, the stomata played a very small role in limiting the supply of CO<sub>2</sub>. In the latter case, kinetic studies of light and CO<sub>2</sub> showed

that the imposed stress affected the photosynthetic capacity (i.e., the maximum rate of CO<sub>2</sub> assimilation) in high light conditions and CO<sub>2</sub>, but did not influence the rate of photosynthesis at low light intensities.

Typically, increments in salinity of salt marsh soils occur over periods of days, and are influenced by the frequency and intensity of storms and by the tides. Thus, the ability of salt marsh species to acclimate to changes in soil salinity within a twenty-four hour period may be a crucial physiological adaptation for surviving environmental stress.

Measurements of the amounts of ultraviolet sunlight received at the earth's surface show that there are periodic increases and decreases that are not caused by the activities of man or by volcanic activity. Current data from land-based instruments operated by SERC, indicate that these increases and decreases are due primarily to differences in the amounts of ultraviolet produced by the sun. Data obtained by National Air and Space Administration satellites of solar radiation above the atmosphere support this finding. Therefore, concerns about man's role through the addition of fluorocarbons that change the earth's atmosphere by altering the ozone concentrations, thus changing the amounts of ultraviolet radiation transmitted, must be evaluated in terms of this information. Instruments were installed late in fiscal year 1984 at Mauna Loa Observatory in Hawaii in collaboration with the National Oceanic and Atmospheric Administration to measure ultraviolet at the 11,000-foot level. These measurements in the relatively clean atmosphere, remote from urban pollution, will provide a better indication of the changes in ultraviolet resulting from atmospheric changes specifically in the troposphere.

Long-term measurements of the color quality and amounts of visible solar radiation over a fifteen-year time period have been completed and indicate a remarkable stability for any given geographical location. This stability is true only for the visible portion of sunlight and since most of the visible sunlight changes so little, measurements are no longer needed in wide bands. These data provide an extensive base line available to future researchers. Instruments designed and constructed by SERC that measure in relatively narrow bands in the visible portion of the spectrum have proven to be very reliable, and their use will continue in measuring selected bands of sunlight of interest for specific biological responses such as photosynthesis or flowering.



## Radiocarbon Dating

The radiocarbon dating laboratory operates within the Regulatory Division, performing basic research in radiocarbon dating as well as providing service datings of archeologically interesting artifacts for the museums.

Studies of the relative rise of sea levels in the Gulf of Maine over recent time periods has continued. A large discrepancy in the radiocarbon dates for shell-midden sites along the shore of Passamaquaddy Bay in coastal Maine prompted an investigation of relative sea level rise in the area as a result of crustal warping. Tide gauge records and documented photographic records indicate that while the relative sea level is rising a few centimeters per century in western New Brunswick, that rise amounts to nearly a meter per century in eastern coastal Maine. In cooperation with the University of Maine, cores of salt marsh peats have been taken at numerous sites along coastal Maine, and are being dated to provide a more extensive chronology of sea level rise. Initial evidence suggests that a similar rapid rise took place in this region between 2,500 and 2,000 years ago. A geologic fault line separating the two areas indicates continued geological instability.

### *ACTIVITIES AT EDGEWATER*

#### Environmental Biology

The principal objective of SERC's environmental biology program is the study of environmental processes in estuarine and watershed systems. Observational and manipulative studies are designed to develop and test ecological concepts at the macroscopic process level (landscape, habitat, community, or population). Emphasis is placed upon studies of how biological communities are developed and maintained over time. The need for such research is increasingly critical in a world where chronic disturbance is causing major reductions in the productivity and diversity of environmental systems. The primary site for this long-term, intensive research is the Smithsonian property on the Chesapeake Bay (tidal Rhode River and its watershed). The site includes a mixture of land uses typical of the Atlantic Coastal Plain, as well as freshwater and brackish tidal wetlands, and an estuarine tributary to the Chesapeake Bay. This environmental diversity and the long-term control of the property make the site exceptionally suitable for a variety of studies of the complex processes linking terrestrial and estu-

arine systems. Comparative studies are also conducted at a wide range of secondary sites, to test the generality of research results from the primary site.

### Genetic and Morphological Diversification of Salamanders

Although salamanders are often considered to be characteristic of the north temperature zone, more than half of the world's salamander species actually live in the New World tropics. In the most recent phase of a long-term comparative study, involving scientists from the Smithsonian Institution, the University of California (Berkeley), and the University of Chicago, patterns of genetic and morphological similarity were compared in salamanders of the genus *Pseudoeurycea* that inhabit the Transverse Volcanic Range of south-central Mexico. Previous evolutionary studies of this group had been hampered by superficial similarities in the appearance of even distantly related species, but the separation of enzymes by starch-gel electrophoresis and the analysis of detailed morphological measurements has made it possible to sort out much of the complex genealogy of these salamanders.

As a result of this research, a distinctive new species (*Pseudoeurycea longicauda*), was discovered and described, and the relationships of *P. leprosa*, *P. robertsi*, and *P. altamontana* were clarified. *P. leprosa* consists of a number of morphologically similar, but geographically isolated, populations that inhabit the highest volcanic peaks and ridges in south-central Mexico. Genetic comparisons indicate that some presently isolated populations have been separated only since the Pleistocene era, while others have not exchanged genetic material since early Pliocene times. At the other extreme, *P. robertsi* and *P. altamontana* are sufficiently different in appearance to have been placed in different species groups by previous workers, but electrophoretic comparison of enzyme variation in these two species suggests that they have diverged only within the last 1-2 million years.

### Ecology of Crane-fly Orchid

Long-term studies of the Crane-fly Orchid (*Tipularia discolor*) in a deciduous forest at the center's research site in Maryland are revealing the complex nature of a plant species' adaptations to its environment. Because this plant produces one corm (an underground storage organ) per year, which persists for several years, and also has distinct reproductive and vegetative seasonability, it

was chosen as the subject of a study on how plants allocate their resources in a natural population. Corms older than one year lose weight gradually during the year and most vegetative growth goes into current year corms. Leaves and sexual reproductive structures account, at peak weight, for approximately 20 percent of the total plant. The largest percentages of nutrients were found in corms two years older, and nutrient concentrations were also high in newly formed leaves and flowers. Analysis of the weight and nutrient data suggests that translocation is important, but it does not account for all of the uptake in new growth. Plants must, therefore, assimilate nutrients from the soil during periods of growth. The results suggest that large, belowground nutrient storage pools are maintained for purposes other than providing nutrients for pulses of growth.

### Effects of Forest Fragmentation on Birds

Man's use of the landscape often results in habitat fragmentation, which has diverse ramifications for the animals dependent upon the affected habitat. One of the long-term studies at the center has addressed the question: To what extent has man's alteration of the eastern deciduous forest on the coastal plain impacted breeding bird populations? Point surveys were used to estimate the abundance and diversity of breeding forest birds in relation to the size, degree of isolation, floristics, physiognomy, and successional maturity of 270 upland forest patches in the coastal plain province of Maryland. Physiognomic and floristic characteristics of the tree, shrub, and herb layers of the forest were measured at each site. The local abundance of almost every bird species breeding in the interior of upland forests was found to be significantly influenced by forest area, isolation, structure, or floristics, or combinations of these factors. Highly migratory species tended to be most abundant in extensive stands of mature, floristically diverse forests that were only slightly isolated from sources of potential colonists. Densities of permanent residents and short-distance migrants tended to be less affected by these site characteristics, or had responses opposite in sign to those of long-distance migrants.

The impacts of forest fragmentation on bird populations are complex and species-specific. Many bird species respond strongly to factors other than, or in addition to, forest patch area and isolation. Dissection of the landscape into small highly isolated patches of forest adversely affects some bird species, but struc-

tural and floristic characteristics of the forest are more important than patch size and isolation for many species, given the existing distribution of forest patches in the coastal plain of Maryland.

### Agricultural Herbicides in Runoff

Today most farmers utilize preemergent herbicides (weed killers) as a part of row-crop management. These compounds avoid the necessity of mechanical weed control while the crop is developing after planting. SERC has conducted extensive research upon the fate of these chemicals in order to evaluate their potential for nontarget effects in receiving waters. Two commonly used herbicides in cornfields of the Rhode River Watershed are atrazine (2-chloro-4-ethylamino-6-isopropylamino,1,3,5,-triazine) and alachlor (2-chloro-2',6'-diethyl-N-methoxymethyl acetanilide). Although alachlor was applied in larger quantities, atrazine was detected more frequently in runoff waters and had greater concentrations than alachlor (0-40 vs. 0-6 parts per billion (ppb)). Atrazine was more persistent and more mobile in watershed soils. Concentrations in discharges were not closely related to agricultural land-use. Runoff waters from forested watersheds where herbicides were not directly applied were contaminated with herbicides as a result of atmospheric transport and spray drift. During the three-year study period, a maximum of ten ppb of atrazine, and up to 0.5 ppb alachlor were discharged in winter runoff waters from the eight experimental watersheds, indicating the importance of flow degradation and complex transport mechanisms. In addition to reflecting the quantity of herbicides directly applied to land surface, residual herbicide levels in runoff waters must be influenced by other important factors such as topography and location of croplands in relationship to drainage channel. A major portion of atrazine was found to be in solution in runoff-water samples collected during storm events. Percolation in subsurface flow and dissolution in overland flow were believed to be important transport mechanisms.

### Displacement of Alkaline Ions by Acid Rain

In recent years, environmental scientists in several locations have gradually perceived the importance of chemicals that enter various ecosystems in precipitation. To a considerable extent this concern has resulted from the documentation of steadily increasing acidity in rainfall. This increased acidity in precipitation is pri-

marily due to increasing concentrations of sulfur and nitrogen oxides in the atmosphere. In such places as Sweden, the White Mountains of New Hampshire, the Smoky Mountains of North Carolina, the Appalachian Mountains of Tennessee, the Rocky Mountains of Colorado, and the Sangre de Cristo Mountains of New Mexico, research reports have documented and summarized both ion inputs in precipitation and ionic losses in land discharge. Differences between ionic inputs and outputs can then be ascribed to the interactions of vegetation and soils with chemical components in the precipitation. Most of these published studies were conducted in mountainous regions with low human populations and limited land management. None were in the Atlantic Coastal Plain of the United States. An understanding of natural (i.e., unmanaged) systems is theoretically important, but of limited value when extrapolations must be made to complex, multiple-land-use systems. Understanding nutrient dynamics on a multiple-land-use basis is critically important for wise management of the land. The most abundant land uses on the Rhode River Watershed, as elsewhere on the Atlantic Coastal Plain are forest, cropland, and pastureland. Since no calcareous minerals are found in watershed soils, the latter are poorly buffered against acid rain inputs.

Ionic inputs in precipitation and farm chemicals were measured, as were ionic outputs in land runoff from the principal land-use categories. Patterns of ionic composition were also traced along pathways of surface runoff during storms and soil water percolation between storms. The results from this research confirm other studies that have found a trend of increasing acidity in rainfall, as well as important regional differences in its effects. It is clear that at the Rhode River site, increased hydrogen ion inputs are displacing the essential plant nutrients of  $Mg^{++}$ ,  $Ca^{++}$ , and  $K^+$ . Although displacement rates are apparently low, available nutrient pools in forested areas could be depleted in a few decades, causing ecologically significant effects. Ion losses appeared to be proportional to the magnitude of disturbance associated with the three land uses studied. Thus, total cation and anion outputs were lowest at the forest site, similar but somewhat higher for the pastureland, and significantly greater in the cropland discharge than in either of the other two. Concentrations in the receiving streams closely approximated the discharge-weighted concentrations of surface and groundwater, indicating that analysis of these different flow pathways through a watershed is an important key to understanding the origins of the final output concentrations.

The functional importance of streamside forest in reducing nitrate concentrations in discharge from an agricultural watershed was clearly shown, raising interesting questions as to the generality of this result. Other questions raised by this study are the importance of Fe, Mn, and Al ions in intra-watershed patterns of ion change, and the problem of what measures should be taken to best compensate for  $K^+$ ,  $Mg^{++}$ , and  $Ca^{++}$  losses.

### Tidal Exchange of Nutrients by Marshes

The ecological role of marshes in regulating nutrients, sediments, and microorganisms in adjacent tidal marshes has attracted the interest of many environmental scientists in recent years. In an effort to help clarify this role, SERC scientists measured and compared exchanges by two types of brackish tidal marshes that differ in surface elevation and, therefore, frequency of flooding. Both types of marsh tended to import particulate matter and export dissolved matter, although they differed in the fluxes of certain nutrients. Compared with tidal exchanges, bulk precipitation was a major source of ammonia and nitrate and a minor source of other nutrients. There was a net retention of nutrients by the portion of the Rhode River that included both marshes and mudflat. However, the marshes accounted for only 10 percent of the phosphorus retention and 1 percent of the nitrogen retention, while they released organic carbon amounting to 20 percent of the retention. This suggests that the mudflat, which was interacting with the marshes by tidal exchange, acted as a major sink for nutrients. The primary role of the marshes seems to be transformation of particulate nutrients to dissolved form, rather than net retention or release of nutrients. The exchange of bacteria and algae via tidal

water movements was also studied. A small net import of bacterial and algal cells into both types of marsh was measured, but only an insignificant portion of the total nutrient transport was due to the nutrient content of these cells.

### Bacterial Movement in Marsh Sediments

Environmental scientists have been attempting to determine mechanisms and pathways of nutrient movement in tidal marshes. One hypothesis is that significant movement occurs as microbial cells suspended in the brackish water percolate through marsh sediments. Concentrations and sizes of bacteria in sediments were

determined. Their concentrations in percolating water were found to be less than 1 percent of the number adhering to sediment particles. The concentrations of bacteria in water flooding the marshes was also higher than in waters leaving the marshes in ebbing tides. Thus, movement of bacterial cells doesn't seem to be a major mechanism of nutrient movement in marsh sediments.

### *Smithsonian Office of Educational Research*

Effective October 1, 1984, the Smithsonian Office of Educational Research (SOER) was established to investigate and improve learning as it occurs outside the formal educational system. Recognizing that schools alone are not equipped to address all the educational needs of America today, the SOER is engaged in promoting educational endeavors at all levels and in diverse settings in the belief that lifelong learning habits can only be established with the support and participation of a broad spectrum of society.

People can, and do, learn in a wide variety of situations, although some are more conducive to the transfer and acquisition of information than others. The SOER represents a unique opportunity for studying how people learn outside of traditional educational venues, i.e., schools, and was created in response to the need to investigate informal learning as it occurs in settings such as museums, zoos, and natural areas. It is notable that in the United States, hundreds of millions of people annually visit museums. Far exceeding in attendance all spectator sports combined, museum visitation represents one of the most popular out-of-the-home recreational activities in America, and yet an understanding of how museums function as educational institutions is not yet fully developed.

As an environment that facilitates rather than directs learning, a museum can profoundly influence paths of educational pursuits, arouse interest, inspire appreciation, promote scientific and cultural literacy, and offer an avenue for lifelong learning opportunities. While few professionals would deny this assertion, supporting evidence, based upon empirical research, is woefully lacking.

Staffed with research psychologists and education specialists, the SOER has initiated studies to examine how people learn in a wide variety of social and physical contexts and is particularly interested

in the role of the family in learning. The Smithsonian Family Learning Project (SFLP), which has developed science activities for families to do together at home, has received enthusiastic responses from tens of thousands of families as well as unsolicited national publicity. SFLP activities will be widely available for the first time in the form of a poster-sized wall calendar this fiscal year, and a series of SFLP booklets are soon to be published.

Funded by the National Science Foundation and using a specially developed research method, a study on "The Role of the Family in the Promotion of Science Literacy" is nearing completion, following observation research conducted at the National Museum of Natural History. This fiscal year, the National Science Foundation funded a Community-based Science Project that will attempt to integrate expertise afforded by a variety of community representatives, including teachers, scientists, technicians, parents, and children into a concerted effort directed toward enhancing all participants' awareness and appreciation of science as it relates to society and technology today.

Another project, being conducted at the National Zoological Park, is concerned with the development and testing of orientations for families visiting the Small Mammal House. The materials will be tested for their effectiveness in enhancing the educational value of family visits to a zoological exhibit. Other family-related research efforts include studies at the National Museum of Natural History in Washington, D.C., and the National Museum of Natural History in New Delhi, India.

Results of SOER studies concerning the dynamics of behavior and learning among museum visitors and families have been and will continue to be useful to professionals in education, exhibit design, and family services nationwide. Findings are disseminated through publications, seminars, and workshops for both professional and lay audiences.

## *Smithsonian Tropical Research Institute*

### Introduction

The comparative method plays an essential role in biological understanding, and the tropics, with their unparalleled diversity of plants and animals, offer by far the most fruitful opportunity for compari-



son. Moreover, tropical conditions are near the norm for most of the earth over most of the last few hundred million years, while conditions typical of modern "temperate" zones have been far more restricted or ephemeral. Research in the tropics, where the precision of adaptation and the intricacy of interdependence reach their height, will accordingly play an essential role in any attempt to understand life in its full and proper context.

It is therefore an urgent duty to become sufficiently acquainted with the denizens, plant and animal, of tropical habitats, to be able to bring them to life for a wider public. Only if rain forests and coral reefs come alive in people's minds and imaginations can we hope that tropical habitats will not be wiped out, unheeded and unrecognized, as part of the macabre sacrifice of the "less developed" world to the "developed." We have yet to complete Adam's task of naming the animals and plants; even a name, as Parmenides saw so long ago, helps bring something to life in men's minds, and is a necessary first step toward understanding. There is so much more to do.

The Smithsonian Tropical Research Institute (STRI) is well placed to help achieve the required understanding. Its primary advantages are:

(1) Administration of, and access to, the Barro Colorado Nature Monument, a 5,400-hectare reserve of tropical forest, some of it primary, surrounding the central part of the Panama Canal. This reserve offers an unparalleled array of background information and previous research on which to build.

(2) A position athwart a narrow isthmus between two very different oceans, offering abundant opportunities for comparative study.

(3) Extensive resources to support research—financial assistance for students, suitable laboratories and equipment, a research vessel, and an unusually good library.

(4) A staff with worldwide experience in tropical research, and a group of students, postdoctoral fellows, and recurrent visitors committed to intensive tropical research.

The quality of the student contribution, and the importance of adequate support for students, cannot be overemphasized. In 1984 Phyllis Coley, now of the University of Utah, won the Ecological Society of America's Mercer Award for her thesis research on Barro Colorado Island, published in *Ecological Monographs*. This award is given to that young ecologist with the best ecological research published in the United States or Canada during the past

two years, and is the "highest form of recognition for published ecological research." In 1981 Nigel Franks, of the University of Leeds, won Britain's Thomas Henry Huxley award for thesis research on Barro Colorado.

### Systematics

Helping others to recognize plants and animals, past and present, is a significant part of STRI's research. Robert Dressler is continuing his studies of orchid taxonomy. Dolores Piperno is continuing her work with phytoliths, silica inclusions in plants that persist in the soil when the plant decays, and whose shapes reveal the order or family, and sometimes the species, of the plant that formed them. Daniel Suman is studying carbonized particles from more than forty common species of grasses and twenty species of trees to see whether these species can be recognized from the fragments they release into the air when the plants are burned. David Roubik, Enrique Moreno, and Robert Schmalzel are preparing a "pollen flora" of Barro Colorado Island, which will allow students of bees to learn what species of plants bees are taking pollen from, students of flowering rhythms to learn the seasons when different species of plants are opening their flowers (by periodically sampling the pollen bees bring back to their hives), and paleobotanists to reconstruct the past history of vegetation from the layers of pollen deposited at the bottom of a lake or bog. Nancy Garwood, in collaboration with staff members of the British Museum (Natural History), has begun a seedling flora of Barro Colorado Island and adjoining parts of Panama, which will enable students of forest regeneration to identify seedlings of dicotyledenous trees, shrubs, and lianas. Joseph Wright and Hugh Churchill are preparing a flora and avifauna of the Contreras Islands, just off Coiba, which is the largest island off the Pacific Coast of Central America.

### The Origin and Nature of Biological Diversity

A more prominent theme in STRI's research is to understand the origin and document the nature of biological diversity, and to learn how it is maintained.

William Eberhard has just completed a book on the evolution of genitalia. He finds that in almost any animal with internal fertilization, genitalia evolve steadily and rapidly, reflecting the advantage of any innovation that excites fuller reproductive response from

the female, even if there is no need for the species to develop sexual habits sufficiently distinctive to avoid mating with members of related species.

Genitalia accordingly provide a very convenient and effective means for distinguishing between species. More generally, William Eberhard's work supports the view of Charles Darwin that speciation reflects "accidental" divergence of isolated populations, reflecting their different response to sexual selection, rather than direct selection to prevent different populations from hybridizing.

Mary Jane West-Eberhard has been studying tropical insect societies, with an eye toward understanding some puzzles concerning the apparent suddenness with which species appear in the fossil record. Living in groups leads to social competition, which is often intense enough to dictate alternative specializations. Animals lacking the size and experience needed to "win the competition" for mates or food often have behavior patterns that allow them to circumvent the competition. When, for some reason, one specialization becomes disadvantageous throughout the population, might the newly unbalanced selection for the other lead to a sudden "evolutionary jump?"

Robert Warner, of the University of California at Santa Barbara, has been studying blue-headed wrasses, fish that live on coral reefs of the San Blas Islands, off the Caribbean coast of Panama. Most of these fish are born female, and turn into bright-colored territorial males when large enough to compete effectively for females. Some, however, are born as female-colored "drab" males, which secure matings by stealth, rather than through open competition, illustrating the "alternative specializations" just mentioned. They, too, turn into bright-colored territorial males when old enough to do so. Warner has been concerned with how "tradition" affects where on a reef the blue-head males set up their spawning territories. He finds that exchanging all territorial blue-heads between a pair of reefs does not affect where the territories are formed, and exchanging all fish of both sexes requires the spawning territories to be chosen anew. They are formed, as before, at the downcurrent end of the reef, so that fertilized eggs will quickly be swept away from the reef and its predators, but the territories are obviously different, suggesting that tradition does matter.

Eric Fischer, of the University of Washington, has been studying the social behavior of a coral reef fish, *Serranus baldwinii*, in the San Blas Islands. Young adults are hermaphroditic, carrying male and female sex organs, both functional, but when they grow larger

they turn purely male, assume brighter colors, and maintain harems of hermaphrodites.

He has also been studying *Serranus tortugarum*, a fish that maintains functional organs of both sexes all its life. These fish spawn in pairs, the members of a pair exchanging sex roles in successive spawning bouts, as if trading eggs for each other to fertilize. They often pair with the same mate for days on end. However, in contrast to the hamlets, *Hypoplectrus*, which Fischer studied earlier, these fish also dart in to fertilize eggs released by other mating pairs, and if they arrive too late to fertilize those eggs, they sometimes try to eat them instead.

Ken Clifton, of the University of California at Santa Barbara, has been studying the social behavior of the striped parrotfish, a small parrotfish common in the San Blas Islands. A large female has one or more smaller females in its territory. She apparently permits this because they help defend the territory against conspecifics, rather than for any help more eyes might give in watching for predators. This contrasts with insectivorous birds of the tropical forest understory, some of which feed in flocks of several species to take advantage of each other's vigilance.

Arcadio Rodaniche has been studying the reef squid *Sepioteuthis* in the Indo-Pacific, to compare their social behavior with the *Sepioteuthis* he studied with Martin Moynihan in the Caribbean. These squid have ten times more behavioral displays than most birds or mammals. This extensive repertoire is made possible by their dazzling ability to change both hue and color pattern very rapidly. He has also been studying the social behavior of two harlequin octopi, *Octopus cherchiae* and *Octopus* sp., in the laboratory. These octopi are striped all over: their color pattern is more intricate, and more permanent, than those of most cephalopods, and their capacity to change color is restricted to adjusting the darkness of their pattern. Their social displays are accordingly of unusual interest. He also found that *Octopus cherchiae* reproduces more than once in its life, one of the very few cephalopods to do so.

Ira Rubinoff, Jorge Motta, and Jeffrey Graham have been employing ultrasonic transmitters to track Pacific sea snakes to learn how long and how deep they dive. They have been observed to dive as long as four hours, and as deep as twenty-six meters. In Panama Bay it appears that sea snakes dive to shallower depths during the dry season, when upwelling often moves the 20°C isotherm closer to the surface. It is not known why they dive, although they are

obviously well adapted to do so: they do not feed while they dive, and they do not dive to escape predators.

Eldridge Adams, a predoctoral fellow, has been studying mangrove ants at Galeta, STRI's mainland Caribbean field station. First he sampled 100 trees, ten meters apart, then 500 trees partitioned over several forests, for their ant communities. He found that trees with the rather aggressive small ant *Azteca* tended to lack *Crematogaster* and vice versa. *Zacryptocerus*, on the other hand, tends to occur with *Azteca*, following them to food: *Zacryptocerus* apparently has a form and odor that the *Azteca* cannot sense. Adams has also been studying interactions between *Azteca* colonies and between *Azteca* and *Crematogaster*, employing manipulative experiments where appropriate. Interactions between ant colonies are easily studied in mangrove forest, because the ants interact above ground where they can be seen.

Jacqueline Belwood, another STRI predoctoral fellow, has been studying various facets of the ecology and behavior of insectivorous bats, particularly bats that glean insects from foliage. She has followed seasonal changes in the diets of various foliage-gleaning bats that take their prey back to their roosts before eating them: she judges their diets from the wings the bats drop to the forest floor while feeding.

She has also discovered that one bat, *Tonatia sylvicola*, is attracted to calling male katydids but, instead of eating the calling male, it eats the females the male attracts. Moreover, she has discovered a bat, *Myotis nigricans*, whose call starts so slowly that a "fast Fourier transform" program cannot pick up its onset (although the program has no difficulty with the call when played backward). She inferred that moths could not hear its onset either, and verified that the bat lives entirely on moths.

She has also studied the various ways katydids attract mates without being eaten: they may call rarely, or call from places the bats cannot get to, or attract mates by vibrating their perches in a manner that their conspecifics sense but the bats cannot.

With James Fullard, of the University of Toronto, Jacqueline Belwood has been preparing a catalogue of recordings of the echolocation calls of the various bats on Barro Colorado Island, and they have now recorded thirty-two of the fifty-three species of bats on the island. This is the most complete "echolocation profile" yet given for a tropical bat community, and comparison of a bat's echolocation call with where, what, and how it hunts promises greatly

improved understanding of the function of different echolocation calls.

Ola Fincke, a STRI postdoctoral fellow, has been studying the ecology and reproductive behavior of three species of giant damselfly, one *Megaloprepus* and two *Mecistogaster*. They all lay their eggs in water-filled tree holes, where their nymphs live on mosquito wrigglers and small tadpoles. Large adult males of the genus *Megaloprepus* establish reproductive territories around tree holes in light gaps, allowing females to lay eggs in "their" holes in return for a mating. Many more females visit tree holes in light gaps than those in deep shade. Males cease defending tree holes in the dry season, even if the holes are artificially replenished with water, but they are always capable of mating. *Mecistogaster* adults, on the other hand, appear to meet and mate by chance, and *Mecistogaster ornatus* undergo reproductive diapause in the dry season.

Stephen Mulkey has been studying three species of small forest bamboo, following the demography of selected populations in the forest and testing their responses to light level and nutrient availability in the growing house. He found that the light-demanding species is most tolerant of drought, and the shade-tolerant species least so, while, on the average, the third species is less tolerant of drought than the light-demander. This study is an unusually careful test of Robert MacArthur's notion that the "jack of all trades is master of none," and indeed, the third species grows markedly less well in shade than the shade-lover and is somewhat less tolerant of drought than the light-demander. The third species is also more flexible developmentally, putting out very different leaves in sun and shade.

David Roubik has been studying the pollen diet of honeybees, both feral African and European, at various sites in Panama, as part of his study of the impact of invading feral African honeybees on native bee communities.

He also visited eleven countries in Asia during a three-month trip, looking at stingless bees (meliponines) and honeybees. He found that there are more species of stingless bees in southeast Asia than in the dry forest of Guanacaste, Costa Rica, even though the Asian stingless bees coexist with two species of honeybee. Some Asian stingless bees forage aggressively, driving other species of bee, and in one case, even conspecifics, away from flowers, and some "steal" pollen without fertilizing flowers. He also observed the species of giant honeybee in Nepal, the only species of honeybee restricted to the north temperate zone.

## Seasonal Rhythms of Tropical Communities

It is important not only to realize the diversity of adaptation in tropical plants and animals, but to see how they fit together in the life of the community as a whole. On Barro Colorado, life in the forest is dominated by a seasonal alternation of drought and heavy rainfall, which imposes a seasonal rhythm on plant growth and reproduction and entails a seasonal alternation of feast and famine for the animals. Seasonal rhythms are less obvious in marine communities, but are not absent there.

Peter Becker, working with Philip Rundel of UCLA, has been looking at seasonal rhythms of leaf production, studying the relation between leaf production and water potential in plants illustrating three major rhythms of leaf production:

(a) those that start putting out new leaves in February, and finish flushing about the time the rains come in April,

(b) those that flush new leaves just after the rains come, and

(c) those that are putting out a few new leaves through the year.

He finds, as one would expect, that plants have lower water potentials (reflecting greater water stress) in the dry season, both at dawn and at midday, than in the rainy season. More surprisingly, the predawn water potentials of plants in the old forest of the central plateau of Barro Colorado Island are three to four times lower than those of plants on slopes of Lutz Ravine, near the laboratory clearing ( $-12$  compared to  $-3$  bars). Apparently liberal watering during the dry season of four species of understory shrubs and saplings in Lutz Ravine did not increase their growth rate.

Eugene Schupp has been studying factors affecting the timing and vigor of flowering and fruiting in the common understory treelet *Faramaea occidentalis*. Schupp finds that *Faramaea* which produce lots of seed produce a higher proportion of good seed: an individual with 1,000 fruits will have 300 sound ones, while an individual with 8,000 will have 5,200 sound fruits. A large fruit crop apparently "swamps" the insects that parasitize the seeds. Moreover, *Faramaea* which produce few flowers and fruits one year generally produce many the next.

Iguana show a very sharp seasonal rhythm. Females come to places with bare earth to lay eggs near the end of January and beginning of February, and hatchlings emerge at the beginning of the rains, when new leaves are most abundant. Stanley Rand and his associates have completed a fifth season of catching and marking

female iguanas that have come to lay eggs on "Slothia" and other islets surrounding Barro Colorado: some animals have nested on Slothia for five successive years. This year's hatching was the most abundant and successful of the last four.

Natasha, the four-meter-long crocodile that used to nest on Slothia and harass the iguanas digging near her nest site, died in November 1983, and in 1984, a smaller female crocodile took over the laboratory cove.

Enrique Font radiotracked eight iguanas for six months, and found that they have very restricted home ranges. The six males never ventured more than a few score meters from where they were first marked. One adult female traveled more than a kilometer, the other, over 500 meters, to nest. They returned to their original ranges after several weeks, and stayed there.

Katherine Troyer finds that "middle-aged" iguanas lay more eggs than either very young or very old ones. She and George Zug have clipped the toes of several hundred iguanas, from which clippings they can assess the ages of the iguanas.

In Chiriqui, Robert Schmalzel has been studying the rhythms of flowering in plant communities along an altitudinal gradient from sea level to 3,000 meters, periodically sampling the pollen honeybees bring back to their hives at a suitable variety of sites. Together with David Roubik's work in central Panama, this is the first attempt to delineate the role of honeybees in tropical plant communities. Generally, he finds that bees do have quite an impact on their communities. Stingless bees eat many kinds of pollen so efficiently that a broad spectrum of flower types are restricted either to the highlands, where stingless bees do not reach, or to opening at night, when these bees do not fly. Coping with over-greedy bees plays a previously unsuspected role in flower evolution.

Donald Windsor, Jeff Burgett, Ricardo Thompson, and John Cubit have been calculating the frequency and the seasonal distribution of those calm spells during low tides that expose the reef flat at Galeta to the sun, with such devastating consequences for its populations. They have found that wind and waves, as well as the tidal level, affect the prospect of an exposure. Exposures are not predictable, but are most likely to happen during a calm spell at the end of the dry season or the early part of rainy season.

Jeff Burgett has been studying seasonal rhythms of plant cover on the reef flat at Galeta, some of which reflect the seasonal distribution of the exposures just mentioned. He finds that the alga *Laurencia* dominates the reef flat for eight months of the year, but





An overheating of the surface waters of the eastern Pacific during El Niño of 1983 resulted in die-off of the coral reefs in the Gulf of Chiriqui. The white areas indicate *Pocillopora spp.* that have lost their tissues. In 1984 Smithsonian Tropical Research Institute biologists cored the reefs to determine whether a similar die-off had occurred in the past 300 years. (Photograph by Peter W. Glynn)

Adela Gomez, who served the Smithsonian Tropical Research Institute for thirty-nine years, is honored on her retirement. Shown here, from left to right, are Martin Moynihan, former STRI director; Olga Linares, anthropologist; Mrs. Gomez; and Ira Rubinoff, director of STRI.



that when the reef flat is exposed to the sun, the *Laurencia* die back. They persist as resistant crusts, and a fuzzy mat of aufwuchs develops in its place, providing a feast for a variety of small crabs. The aufwuchs do not retard the regrowth of *Laurencia* in any way.

### The Perils of Recruitment

One of the greatest problems for many tropical organisms is surmounting the perils of youth. The life of pelagic larvae of marine organisms, and the types of problems they face, are very poorly known indeed, nor do we have any idea how events in the plankton shape the distribution and abundances of the visible adult organisms that make up a marine community. Our knowledge of tropical tree seedlings is not much better. The major theories of tropical tree diversity hinge on conflicting sets of assumptions about the most important factors affecting seed and seedling survival and seedling growth, yet our ignorance of the problems these seedlings actually face is such that we cannot decide the relative merits of the theories concerned.

John Christy has been studying the reproductive cycles in four species of crabs of rocky intertidal shores on the Pacific side. When do they release their larvae? What roles does timing of release play in helping the larvae to avoid predators?

Species with small, transparent larvae release them at high tide, no matter what time of day the tide may occur: since the larvae are "invisible," the one thing that matters is to flush them out to sea on an ebbing tide. Large transparent larvae are released only on nocturnal high tides, when at least some predators are absent. During the day, sardine (*anchoveta*) packs come inshore and feed greedily on crab larvae, but the sardines disappear at dusk, when their predators emerge. Species with more opaque larvae release them only on those high tides that begin ebbing near dusk. Estuarine species do likewise. It was once thought that by doing so, the estuarine species released their larvae upon the strongest tides, ensuring the greatest chance that they would be flushed past the inshore predators and out to sea, but the advantages of releasing larvae when they could enjoy several hours of invisibility and of protection from predators might also affect the timing.

Robert Richmond has been studying coral reproduction and recruitment in the Eastern Pacific. He finds that *Pocillopora damicornis*, the common branched coral of the Eastern Pacific, do not reproduce sexually in Panama: instead, they reproduce by fragmentation, apparently because larvae and very small corals are

invariably eaten. Fish apparently prey far more heavily on corals in the Eastern Pacific than in the Indo-Pacific, where *Pocillopora* reproduce sexually. The very few coral larvae that do appear on settling plates in the eastern Pacific may have drifted in from the Indo-Pacific.

David Hamill has been carrying out an experimental study of the factors affecting survival and growth of the seedlings of the four most clumped, and the four most evenly dispersed, species of canopy trees on the fifty-hectare Hubbell-Foster plot on Barro Colorado Island. For each species, he planted twenty plots of seedlings by large trees of that same species, ten in light gaps, ten under *Trichilia tuberculata* (the commonest tree on the plot), and one each under ten different species of rare trees, the same ten for each kind of seedling. Early results suggest that the most clumped species depend most on light gaps, and cannot survive as seedlings outside those gaps, while the most evenly distributed species are the most shade-tolerant.

As part of his study of *Virola surinamensis*, Henry Howe, of the University of Iowa, has measured the survival rate of seeds and seedlings placed at different distances from the parent tree. A seedling twenty-five meters from the parent, well beyond its crown, has twenty-two times the chance of surviving to twelve weeks, and a seedling forty-five meters from the parent, forty-four times the chance of surviving that long, as a seedling five meters from the parent. He infers that dispersal by toucans, which carry seeds further than smaller birds, is beneficial to *Virola*, and toucans are indeed the primary consumers of *Virola* fruit and dispersers of *Virola* seeds. Eugene Schupp finds that dispersing a *Faramaea* seed five meters from its parent doubles its chance of germination.

Joseph Wright has been collecting seeds to learn what insects emerge from them. Nearly half the seventy species of plants checked so far never have insects in their seeds, perhaps because the seeds are too small, or too few per plant, or on too rare a plant, to support such insect pests.

He has also continued his study of the relation between the timing of fruit production by the palm *Scheelea* and the degree to which bruchid beetles damage their seeds. He has put out seeds at different places, and at different times of year. No bruchids come to seeds put out far away from palms, or when no palms are fruiting. Bruchid attack rate immediately steps up to a high level when *Scheelea* start dropping fruit, and remains high past the peak of

*Scheelea* fruit fall, but palms which drop their fruit late in the season escape bruchid damage.

### Geographical Comparison

Not only must we set an organism's adaptation in the context of other plants and animals with which it interacts, we must put our understanding of the community in the context of comparable communities elsewhere, and of the same community at different times.

Alan Smith visited Kenya in the fall of 1983 to continue his study of the demography of alpine tree *Senecio*, as part of a long-term comparative study of the morphology and demography of rosette plants in Venezuela, Kenya, and New Guinea.

Marina Wong has been studying the seasonal rhythm of insect and fruit abundance, and of the number of birds caught in mist-nets, in the understory of old forest on Barro Colorado Island and of somewhat younger forest on the adjacent mainland. She is comparing these rhythms with those found in peninsular Malaysia. There is more fruit in Panama, with more birds to eat them. Moreover, judging the season of breeding by when birds call, when their fat is depleted, and when "brood patches" appear, she finds that breeding of the insectivorous birds in Panama's understory is synchronous within species, but that the breeding seasons of different species are staggered all through the rainy season. In peninsular Malaysia (and Sarawak), where dry and wet seasons are much less distinct, breeding of nearly all understory birds is concentrated at the beginning of monsoon rains, coincident with the peak of leaf flush and insect abundance. She also finds that conspecific plants fruit more synchronously, and more abundantly, here than in Malaysia, and that there is a more clear-cut succession of different species coming into fruit as the rainy season progresses than in Malaysia.

### Long-Term Research

A temporal context for research at STRI is provided by our Environmental Sciences Program, directed by Donald Windsor. This long-term study monitors fluctuations in selected aspects of climate and the physical environment, and the responses, in growth, reproductive activity, and abundance of representative biological populations, at both the reef flat of Galeta and Barro Colorado Island. In connection with this program, Henk Wolda has completed ten

years of records of nightly catches of insects at two light traps, one in the canopy and one near the ground. By now Dr. Wolda has ten years of data on homoptera and nine on forest cockroaches. He finds that tropical insect populations fluctuate as much as their counterparts in the temperate zone. He has extended his study to other sites, and is gradually acquiring collaborators capable of identifying additional groups of insects.

There are other long-term studies at STRI. Over the last few years, Stephen Hubbell, Robin Foster, and their associates have mapped every woody free-standing plant over 1 cm dbh in a fifty-hectare plot of old forest on the central plateau of Barro Colorado Island. This year, Hubbell and Foster have rechecked the identifications and locations of plants on their plot, preparing for a second round of mapping and measurement to determine mortality and growth rates. To assess height growth, Kenneth Lertzman remeasured the height of canopy foliage over a series of points five meters apart covering the plot, where Andrea Alexander and others had measured it a few years earlier.

The popularity of such maps is spreading. Stephen Hubbell is scheduled to assist Peter Ashton and members of the Forest Research Institute at Kepong, Malaysia, in setting up a comparable map in a Malaysian lowland mixed dipterocarp forest. Meanwhile, Joseph Wright and Henry Howe mapped a hectare of the Mojave Desert—7,000 plants over ten centimeters high—to judge the degree of clumping within a species and the degree of association between species, and to take the first step toward a study of the demography of desert plants.

The Hubbell-Foster plot has attracted a variety of other projects. Perhaps the most unusual is that of Lyn Loveless, who has been assessing the genetic diversity of different species of trees on the plot in conjunction with James Hamrick of the University of Kansas. What proportion of loci in the different species are polymorphic? How many alleles are there per polymorphic locus? What proportion of an individual's loci are heterozygous? How much do gene frequencies within a species differ from clump to clump, or from place to place? How does the type of pollinator affect genetic diversity or local differentiation? So far, Loveless and Hamrick have found the average proportion of heterozygous loci in their tropical trees to be at least 0.11, about the same as in *Drosophila melanogaster* and 50 percent higher than in mankind. These trees are less diverse genetically than temperate conifers, but about as diverse as temperate dicots. They have also found

that populations of the tree *Alseis blackiana* several kilometers apart differ rather subtly in allele frequencies, while clumps of *Rinorea* that far apart differ greatly. *Rinorea* has as patchy a distribution as any common species on the island.

Neal Smith has continued his long-term study of the migratory day-flying moth *Urania*. He visited Guatemala, Belize, and Los Tuxtlas, Mexico, and found that in all these countries *Urania* caterpillars eat leaves of the tree *Omphalea oleifera*, in contrast to Panama, where their food plant is the vine *Omphalea diandra*. He saw *Urania* arriving at Los Tuxtlas, the northern end of their range, where *Omphalea* and the rain forest stop—they were coming in from the south and east—and the leaves of the *Omphalea* trees were much shredded. A month later, the *Urania* were gone, and the *Omphalea* were flushing new leaves unhindered.

After many years of sampling bird use of forest habitat in Parque Nacional Soberania, James Karr expanded his studies to include several of the major food resources of birds. Recent sampling coincided with the 1983 ("El Niño") drought and the "normal" 1984 dry season. Flowering and fruiting phenologies of understory plants differed from year to year. There was more leaf litter but fewer leaf litter and foliage arthropods were found in 1983 than in 1984. Birds showed different patterns of breeding but not molting phenology between the years. Clearly, the climatic extremes of 1983 had direct impact on a wide diversity of organisms.

John Cubit and Donald Windsor have been estimating long-term changes in sea level, and assessing their effects on the biota, from aerial photographs and other records. The mean sea level on the Caribbean side has increased fifteen centimeters in the past century. It may well rise another 200 centimeters in the next, thanks to heating of the oceans and consequent expansion of the water contained therein, and to the melting of icecaps.

Dolores Piperno has cored several sites in the old forest of Barro Colorado Island, in the Hubbell-Foster plot, and started an archeological trench at the most promising site. Three of her five cores struck pottery, beginning twenty centimeters below the surface. The silica inclusions (phytoliths) that remain in the soil after the plant matter in which they were formed decays show little sign that the vegetation was intensively disturbed: there are few traces of milpa vegetation, and almost no evidence that any of the forest was burned. The top fifteen centimeters of soil, which contains no pottery, also contains no evidence that farms were cleared

from the forest during the last several hundred years, suggesting that some of the forest on Barro Colorado Island may be older than previously thought. The trench shows good stratigraphic record, with plenty of artifacts, stones, and ceramics, to document a human presence, although populations appear never to have been dense. Radiocarbon samples are being submitted to determine the age and duration of the prehistoric occupations. Extension of this work will indeed enable us to set the forest community of Barro Colorado Island in its proper historical context.

### Biological Catastrophes

As we acquire more experience of our habitats, we are better able to recognize and appreciate the catastrophes to which they are sometimes subject.

Harris Lessios, John Cubit, and Ross Robertson have been studying the progress of a devastating plague in *Diadema antillarum*, the long-spined sea urchin of the Caribbean, and its consequences for reef communities. This plague was first noticed at Galeta, our mainland Caribbean field station, where only about three per ten thousand survived. The plague next struck the San Blas, where it killed 99 percent of the urchins in two weeks, mortality varying somewhat from place to place. Through questionnaires, Lessios and his collaborators have tracked the plague's progress around the Caribbean, where, for the first nine months at least, it was clearly following the surface currents. Some algae have appeared since the die-off, apparently thanks to the absence of *Diadema*. The plague did not affect other species of sea urchins.

An overheating of the surface waters of the eastern Pacific during the El Niño of 1983 afflicted the coral *Pocillopora* with heavy mortality. Peter Glynn, R. Dunbar, G. Wellington and R. Richmond have been following its effects. Ramparts of the many-branched *Pocillopora* often surround more massive corals, and the commensal crabs and shrimps that live in these *Pocillopora* make life so miserable for the coral-eating starfish *Acanthaster* that these starfish can neither eat, nor cross, colonies of *Pocillopora*. Now that El Niño has killed the *Pocillopora*, causing their commensals to starve, *Acanthaster* are wreaking havoc on the newly accessible massive corals. Some of these coral colonies had grown evenly and without interruption for over a century before this El Niño, suggesting that the last El Niño of comparable effect struck more than a century ago. To follow up this clue, Peter Glynn and his associates have been drilling massive corals, check-

ing fluctuations in carbon-isotope ratios for evidence of previous warm-water episodes.

Neal Smith has been following the fates of the thousands of Peruvian boobies that came to the Bay of Panama from the normally very productive waters off the Peruvian desert, and the 15,000 blue-footed boobies that came from somewhat less productive waters near the Galapagos, to escape the famine carried their by the El Niño. Some of the blue-footed boobies bred, but eventually all the immigrants disappeared. Most of them probably starved to death.

### The Role of Man in Tropical Habitats

Finally, we are concerned with the relation between tropical man and his habitat, both as it is, and as we hope it might become.

Olga Linares visited the archives of French West Africa in Paris, to study the history of the Diola rice trade in Senegal from the sixteenth century onward. The Diola were actively trading in rice when the Portuguese were in Senegal, but the French elected to import rice from their south Asian colonies rather than improve local transport sufficiently to make Diola rice competitive with the foreign imports. This is an unusually clear example of how colonial policies have shaped present-day patterns of production and exchange in tropical countries.

Daniel Suman is analyzing charcoal particles chemically isolated from two cores from a floodplain in Cocle, a core from the bottom of the Bay of Panama and a core from the bottom of the Laguna (Lake) San Carlos in El Valle. With the aid of his collection of carbonized fragments from plants of known identity, he will infer the changes in the types of vegetation that have been burned during the last 10,000 years, in order to assess the impact of mankind on the vegetation of Central Panama.

The W. Alton Jones Foundation gave STRI a large grant two years ago to support research in a mainland tract adjacent to Barro Colorado Island on how to grow food in the forest without destroying the forest unnecessarily. Gilberto Ocaña has been experimenting with "mixed crops," growing crops of several species and growth forms, whether exotic or traditional, mixed together in regular array, on forest plots, some with a selection of the understory trees left standing, some completely cleared. Nicholas Smythe has built the installation where he will breed pacas, and he has fenced off a peninsula of young to medium second growth, where he will see what schedule and manner of supplemental food



will most decrease infant mortality and most increase the output of pacas big enough to eat. Dagmar Werner has tried a more direct way of averting infant mortality in iguanas: she incubates the eggs and raises the young in cages at Summit Garden before introducing them to the forest. Hatching success has been very high, and mortality among the young iguanas almost negligible. She intends to use some of the iguanas she has raised to repopulate areas where they have been hunted out, and to release others in forest tracts where they can be cropped. She is conducting experiments to see how well iguanas raised in captivity can survive in the wild.

Ira Rubinoff and Elena Lombardo have been representing STRI at meetings of the Preparatory Committee for the Study of Alternatives to the Panama Canal. Shuffling between Panama, Washington, D.C., and Tokyo, this committee is charged with designing a study to examine alternatives or improvements to the Panama Canal. Some of these options have potential for profound anthropogenic effects on the tropical environment, and our objective is to insure that a comprehensive biological inventory as well as an ecological impact assessment is conducted.

#### Retirements and New Appointments

It has not been an easy year for STRI. In March, Adela Gomez retired. During the last thirty-odd years her good sense, and her diplomatic ability, have been essential to STRI's function and sometimes to its very survival. In May, Michael Robinson left the Institute to assume the directorship of the National Zoo. His sure scientific judgment and his sense of fairness made his administrative role at STRI particularly beneficial, and his scientific research added much to the sense of intellectual excitement here. They will both be greatly missed.

Bernadette French resigned from the library staff in December 1983 to continue her education. This September, Carol Jopling will retire as head librarian at STRI. She has presided over the introduction of new techniques of cataloguing and bibliographic searching. She supervised the move to a new and larger building, and because of her, these changes were much easier for users of the library than they might otherwise have been.

Not all has been loss, however. James Karr, formerly of the University of Illinois, has joined STRI as deputy director. Jeremy Jackson, of Johns Hopkins University, and Nancy Knowlton, of Yale University, have accepted positions on the staff as marine

biologists, and their presence will greatly strengthen our marine program.

In August 1983 Jorge Ventocilla, a biologist and graduate of the University of Panama, took charge of STRI's Office of Conservation and Environmental Education (OCEE). Under his direction the OCEE, in conjunction with the Department of National Parks and Wildlife of RENARE, produced a color poster on the endangered fauna of Panama. This poster has been distributed to numerous educational centers and public and private offices throughout Panama; it has had an acknowledged importance in promoting the protection of endangered species. Along with his work in the OCEE, Ventocilla presently acts as a coordinator for the planning group of the San Blas Kuna Indians' conservation project.

### Academic Training

A milestone this year was the first field course in tropical biology organized jointly by STRI and the University of Panama. It took place from March 9 through April 10, and was coordinated by Yael D. Lubin, a STRI research associate, and Rosemary Segistan and Victor Hugo Tejera, professors at the University of Panama. The University of Panama and STRI signed an agreement in 1980 to jointly support the advancement of knowledge in tropical biology, and the course represented a tangible example of this collaboration during a year dedicated to scientific research at the university. Thirteen students and thirty-one lecturers and instructors participated. The students were introduced to field research methodology at four different sites, chosen to represent diverse tropical habitats: tropical rain forests, Atlantic and Pacific mangroves, and premontane forests. It proved to be an effective way to make scientific resources at STRI available to students in our host country.

During the month of February, Robert Read, a visiting scholar from San Jose State University, offered two ten-hour seminars: Tropical Meteorology and Applied Oceanography. These were attended by staff and students at STRI and the University of Panama, and personnel from the Meteorological Branches of Panama's Institute of Hydraulic Resources and Electrification and the Department of Natural Renewable Resources.

Robert Dressler left in July to teach an advanced course on orchid taxonomy at the University of Costa Rica.

More than sixty young men and women at different academic levels took part in advanced training and research activities at

STRI this past year. They represented nations in the less-developed and developed world—a sample of future tropical researchers.

Finally, this year STRI began the first phase of a master plan. The architectural and engineering firm of Bernard Johnson of Houston, in association with Lopez y Moreno of the Republic of Panama, were selected to prepare the plan. This process should lead to orderly expansion, modernization, and broadening in the spectrum of service that STRI can provide for its staff, students, and visiting scientists.

The initiation of the master planning process confirms the commitment of the Smithsonian to develop its role as the nation's principal advanced study center for basic tropical biological research.

This rare Tetela (Zaire) mask, one of two such documented examples in public museum collections, was acquired by the National Museum of African Art with the support of the James Smithsonian Society. (Photograph by Ken Heinen)



## HISTORY AND ART

JOHN E. REINHARDT,  
ASSISTANT SECRETARY FOR HISTORY AND ART

### *Anacostia Neighborhood Museum*

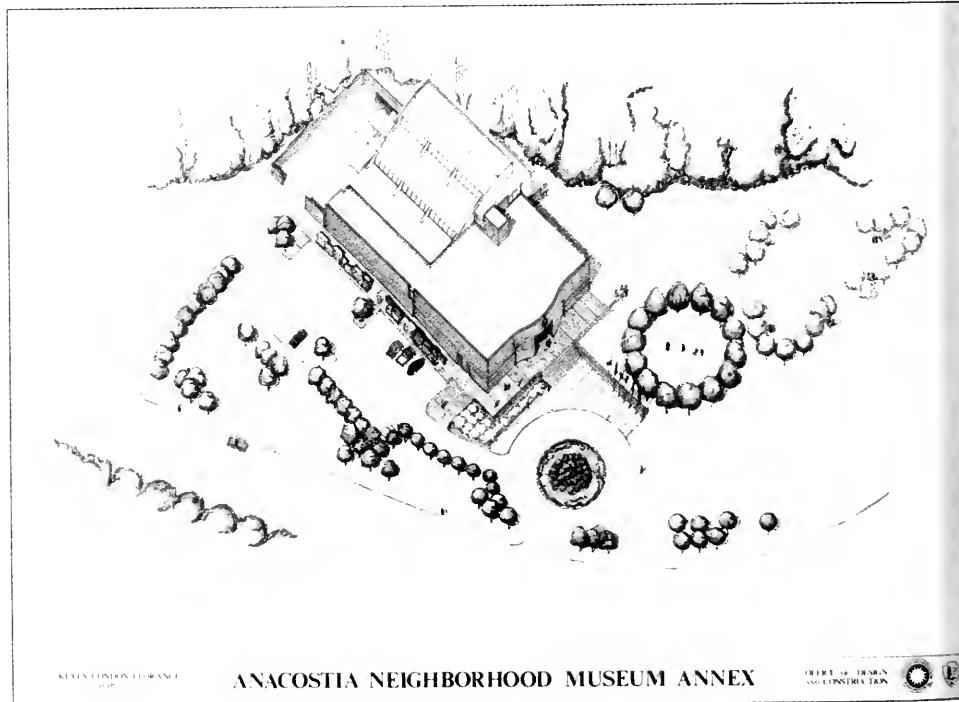
This year the primary focus of the Anacostia Neighborhood Museum (ANM) was on plans to build and furnish a new annex and public space. Groundbreaking for this new facility, which will adjoin the museum's Research and Exhibits Lab, is projected for early 1985. The annex will facilitate enrichment of the museum's exhibits and explanatory programs, and will allow for the presentation of more diverse and active programs for the public.

For the past seventeen years, ANM has been housed in several leased buildings. From the former Carver Theater (named for the pioneer agricultural scientist George Washington Carver), at 2405 Martin Luther King, Jr. Avenue, SE, the museum's director and administrative staff moved to more suitable quarters at the Research and Exhibits Lab. Until the new annex is completed, ANM's exhibitions and education department will continue to serve the public in this interim leased building.

A third copy of *Black Wings: The American Black in Aviation* was produced by the Anacostia Neighborhood Museum for the Smithsonian Traveling Exhibition Services (SITES). Scripted and researched by the National Air and Space Museum, this popular exhibition—enhanced by selected artifacts and memorabilia—was seen at ANM from April 1 to August 26, 1984. In addition, ANM completed research and scripting for the revised edition of *Black Women: Achievements Against the Odds*, an exhibition widely



Formerly a theater, skating rink, dance hall, and church, the Carver building in recent years has been used to bring historical exhibitions and educational activities to the residents of Anacostia. Now the Anacostia Museum—soon to move from its present Martin Luther King, Jr. Avenue site to Fort Stanton Park—optimistically looks to the future.



traveled by SITES for nearly a decade; continued to work on *The Renaissance*, a major exhibition scheduled to open in the fall of 1985; and began an important research project still in its preliminary phase—“*We Are Climbing*”: *The Development of the Black Church, 1787–1900*.

In the vanguard of the movement to develop quality exhibitions that employ historical documents, artifacts, memorabilia, and vintage photographs germane to Afro-Americana and ethnohistory, ANM broadened its contacts with archival repositories and museum professionals and offered the public unique opportunities to experience well researched, designed, and fabricated exhibits, as well as thoughtfully conceived outreach activities.

Other priorities have been the planning for ANM's future growth at the Poplar Point site along the Anacostia River (Eastern Branch of the Potomac), and the continued development of research programs that support museum and traveling exhibition programs.

### *Archives of American Art*

Nineteen eighty-four marked the thirtieth anniversary of the Archives of American Art, and as though in celebration of that fact, some of the best acquisitions ever were received during the year. The Jackson Pollock papers, a subject of protracted negotiations conducted over the past decade, were donated to the Archives by Pollock's widow, Lee Krasner, shortly before she died. The papers, which consist of statements, notes, and other writings by Pollock, personal and business correspondence, and a large quantity of photographs and published material, represent the chief source of documentary information on the artist. In a separate acquisition, the papers of the Portland, Oregon, painter, Louis Bunce, several important Pollock letters written in 1946, add a fascinating supplement to Pollock's own records.

Another significant figure of twentieth-century modernism was Mark Tobey, whose records are owned by the Seattle Art Museum. Organized and microfilmed by the Archives, these, too, were supplemented by the donation of a substantial group of Tobey letters. A third major artist of the same period, Mark Rothko, is represented by a small but revealing set of notes from the 1930s and 1940s, including preliminary drafts of the 1943 polemical letter to

the *New York Times* in which Rothko and Adolph Gottlieb state their artistic credo. Diaries, correspondence, and other records of an earlier modernist, Arthur Dove, were also acquired in fiscal year 1984.

Collections of papers from the nineteenth century are rarer than those of our own time, but this year the Archives borrowed and microfilmed several of extraordinary value. Among these is the largest single group of Winslow Homer records—some 600 items of correspondence, sketches, photographs, and a scrapbook—and a splendid group of nineteen letters from Thomas Cole, written between 1826 and 1832 to the Hartford art patron Daniel Wadsworth. Papers of three other leading early-nineteenth-century art collectors, Robert Gilmor, Luman Reed, and James Robb, were also filmed. The records of Samuel F. B. Morse, who achieved prominence as an artist before he entered on his second career, exist in vast quantity at the Library of Congress. The Archives, however, has recently received seven Morse letters written to his Breese relatives between 1816 and 1846. They include several references to his painting, and one of them has a charming illustration of Morse asleep in his chair. A few other Breese family letters are a part of the group, the most interesting one, dated Philadelphia, April 19, 1783, describing the effect of the news of peace, which “like a Torrent, has overwhelmed all other news.”

Sketches and sketchbooks from the later nineteenth century include those of Ellen Day Hale and the black American painter Edward Bannister. A long series of letters from Augustus Saint-Gaudens to Frederick MacMonnies, two notable American sculptors, cover the years 1884 to 1904, and in a later series, Gutzon Borglum discusses his work on Mount Rushmore in detail. One of the larger collections received this year is the Violet Oakley papers, which document the long and productive career of a Philadelphia painter and stained-glass designer.

Art critics and art historians play their own role in art history and their files often have substantial research value. Those of the critic Clarence Joseph Bulliet and of the historian Edgar P. Richardson are prime examples. Bulliet was Chicago's leading art critic in the 1920s and 1930s and was an influential figure throughout the Midwest. The papers, which include voluminous correspondence together with his articles, drafts of his writings, and photographs, are a major source of information on the Chicago art world over a quarter of a century.

In a particularly fitting acquisition for this thirtieth anniversary





This photograph of Jackson Pollock (left) with his brother, Charles, about 1930, was among the Jackson Pollock papers donated to the Archives of American Art by the late artist's widow, Lee Krasner, shortly before she died.

year, the Archives received the Edgar P. Richardson papers. An eminent historian of American art, Dr. Richardson established the Archives of American Art in 1954 and guided it through its first decade of growth. His records embrace the entire range of American art history and thoroughly document his long career as scholar, museum director, adviser to collectors, founding father, and forceful presence in the museum community.

The Archives initiated several important collecting projects in 1984. A grant from the Henry Luce Foundation supported a preliminary survey of American art records in Philadelphia and Rhode Island, each with a view to microfilming selected groups of the papers uncovered. A similar project in New Mexico concentrated on personal and institutional collections in Santa Fe and Taos. In a move beyond the national boundary, the Archives received permission from the University Court of Glasgow University to film its extensive group of J.A.M. Whistler papers.

A more permanent collecting venture was established this year with the long anticipated opening of an office in Los Angeles. This sixth regional center, housed in the new Virginia Steele Scott Gallery of American Art of the Huntington Library and Art Gallery, and supported by local contributions, will serve as a base for both collecting and research in Southern California.

The Archives' oral history program has been more than usually productive. Two intensive projects, one documenting the art community of the Pacific Northwest and the other comprising an extended series of personal recollections of Mark Rothko, were concluded this year. Continuing experiments with the video tape medium brought visual interviews with David Hockney on the West Coast and Gladys Nilsson and Jim Nutt in Chicago. An earlier series of video tapes on three Chicago artists, made in 1983 with support from the Smithsonian Society, won a silver medal award this year from the International Film and TV Festival of New York. Among the more useful oral history interviews conducted in fiscal year 1984 were ones with Aaron Bohrod, a Chicago painter whose work has been well known for nearly fifty years, with the contemporary painter Tom Wesselman, and curator and art historian Robert Beverly Hale. In a new departure, the Archives also interviewed an authentic visionary and folk artist, the Reverend Howard Finster, whose swift rise to fame culminated in the presentation of his work at the Venice Biennale and an appearance on the Johnny Carson show.

The volume of research conducted at the Archives of American

Art in fiscal year 1984 rose by 10 percent over 1983, with 3,320 visits from graduate students, scholars, and independent art historians. A similar 10 percent increase to 1,600 rolls of film occurred in the interlibrary loan of Archives microfilm to researchers at universities and museums throughout the country.

Publications with acknowledgements to the Archives appeared in great quantity in 1984. These included books on Mary Cassatt, Thomas Eakins, David Smith, and Louise Nevelson; on modernist painting in New Mexico; on the political basis of abstract expressionism; and on federal art patronage after World War II. Most publications based on Archives materials are exhibition catalogues and articles in scholarly journals. The Archives own publication program brought forth *The Card Catalogue of the Oral History Collections of the Archives of American Art*.

Several changes in design and content will be introduced in the forthcoming issue of the *Archives of American Art Journal*. Its appeal will be enhanced with a new look and new features, including a book review department and a Letters to the Editor section. As befits the quarterly publication of an archival institution enjoying an embarrassment of riches, the *Journal* will present an increased number of particularly revealing and significant unpublished documents, with introductory notes by expert authorities. These will reflect the Archives' important holdings in American cultural and social history as well as in the history of art.

Many programs of the Archives depend upon private funding and the commitment of private citizens throughout the nation. The Archives pays special tribute to those members and trustees who by dint of considerable effort and hard work raised in the past year some \$400,000 in general operating funds. Particular appreciation goes to Mrs. Dwight M. Kendall of Los Angeles; Mrs. Nancy B. Negley of San Antonio, Texas; and Mrs. Charles Kessler of Huntington Woods, Michigan, each of whom raised in excess of \$70,000. Mrs. Kessler recently stepped down from the chairmanship of the Detroit Committee for the Midwest Regional Center, a position she held for nearly four years. The committee, being the first such support group for the Archives, is one of the most active in the country and has consistently raised major funds for more than twenty-five years.

Further appreciation goes to A. Alfred Taubman of Troy, Michigan; Mrs. Francis de Marneffe of Cambridge, Massachusetts; Mrs. John Rosekrans of San Francisco; Mrs. Dana M. Raymond, Mrs. Robert F. Shapiro, and Mrs. Otto L. Spaeth, all of New York City.

Each of them was responsible for either raising or attracting to the Archives more than \$25,000. Mrs. Spaeth, who has been an active friend of the Archives since 1959, was named honorary chairman of the board at the annual meeting of the trustees in May.

Also during fiscal year 1984, the Archives acknowledged major grants from the Henry Luce Foundation, Warner Communications, Inc., the Brown Foundation, the Lehman Foundation, and The Times Mirror Foundation. These funds, along with others, have helped to support various collecting endeavors across the country as well as several scholarly programs including a Senior Fellowship and the Archives' *Journal*.

*Center for Asian Art  
Freer Gallery of Art and Arthur M. Sackler Gallery*

A sense of transition was much evident in the Freer Gallery of Art in 1984. The beginning of the Arthur M. Sackler Gallery with the arrival of assistant director Milo C. Beach, Islamic art scholar and former chairman of the department of art at Williams College, marked the transition to the Center for Asian Art, which encompasses the Sackler Gallery. With the laying of the physical foundation of the Sackler Gallery, the reality of its new building, scheduled to open in 1987, appears as a turning point in the history of the Freer Gallery.

Further tangible evidence of the development of the Sackler Gallery was the arrival of the first objects of the Sackler Collection, generously donated by Dr. Sackler to form the basis of the new museum. Temporary space was prepared at the Museum Support Center to hold the almost one thousand objects until their relocation to the new building. Two groups of Sackler objects were next scheduled to arrive after their exhibition at the Edinburgh International Festival in Scotland. The entire collection was expected to reach Washington by the end of the calendar year.

The Freer was not without its own whirlwind of activity. Plans for renovating the Freer building after the opening of the Sackler Gallery began in a substantial manner. The ultimate goals of the renovation are to provide the Freer with more collection storage



This painting by the fifteenth-century Japanese artist Sesshin shows the deity of the Kitano Shrine (the deified courtier Sugawara no Michizane, A.D. 845–903) in the guise of a Chinese scholar holding a plum branch, recalling the legend that the deity traveled to China to receive the teachings of a Zen Buddhist master. The painting was a gift of the Mary Livingstone Griggs and Mary Griggs Burke Foundation.

space, more exhibition space, more space for conservation facilities, and more teaching space.

Possibly the largest exhibition of work by James McNeill Whistler in this country since the 1905 memorial show opened at the Freer Gallery in May 1984, closing in December. For this show marking the 150th anniversary of Whistler's birth, visitors arrived at more than double the normal rate to see the rare display of oil paintings, watercolors, pastels, and pencil and ink drawings. These works erased preconceptions of the artist as limited to portraits and nocturnes as the breadth of his interests and skills was seen. In this exhibition a number of display techniques were used for the first time at the Freer Gallery.

AT&T was the corporate sponsor for the Whistler exhibition and, in particular, the exhibition catalogue, *James McNeill Whistler at the Freer Gallery of Art*. Written by David Park Curry and copublished with W. W. Norton & Company, the 304-page catalogue was richly illustrated with over 700 photographs, including over 200 in color, made possible by AT&T's generous grant. Besides clearly establishing the significant relationship between Freer and Whistler, the catalogue also describes the various art historical connections of the works in the exhibition and will be the primary statement on the Freer's Whistler collection for some time. A free color brochure, a free lecture, a scholarly symposium with the National Gallery of Art, and two posters accompanied the show, along with special notecards with Whistler etchings. The exhibition and catalogue were well received in national as well as local media.

A photographic exhibition in the lower hall described the Freer-Whistler relationship. This small show followed the photographic exhibition on Charles Lang Freer and the Freer Gallery for the sixtieth anniversary celebration.

To complement the Whistler show, a number of Chinese and Japanese art objects in various media were selected to represent possible pieces that either Whistler had seen or Freer had seen while acquiring Whistler works. In addition, there were other Chinese and Japanese exhibitions this year. *Japanese Drawings* featured works by Katsushika Hokusai and Kawanabe Gyosai as well as a large portion from the Grut Collection, acquired in 1975 and never before exhibited. *Japanese Fans*, which showed painted fans of high artistic quality produced by some of Japan's most famous painters, was a reprise of the popular show of 1980. *Korean Influences on Japanese Ceramics* exhibited fifty objects to

examine the Japanese appreciation of Punch'ong ware, Korean ceramics that entered Japan in the sixteenth century. Korean techniques of applying slip to dark-bodied wares became major elements in the styles of ceramics centers founded by Korean potters in Japan and spread in various forms elsewhere in that country.

*Chinese Paintings* exhibited a selection of thirty paintings spanning the Sung dynasty (960–1279) through the Ch'ing dynasty (1644–1912). This exhibition included two recently accessioned works by Tao-chi, a seventeenth-century painter with a wide reputation in the West. This show was followed by *Masterpieces of Chinese Painting*, exhibiting thirty important works from the Sung through the Ch'ing dynasties to complement the *Treasures from the Shanghai Museum* exhibition at the National Museum of Natural History.

In the Near Eastern field, *Islamic Manuscript Illumination* exhibited nineteen folios produced in Egypt, Iran, Afghanistan, and Uzbekistan between the tenth and sixteenth centuries. The show provided a perspective on the decoration of religious and secular manuscripts. *Pre-Islamic Metalwork* from the Near East exhibited twenty-four objects in silver, gold, and bronze, made in Iran and Egypt, from the 4th century B.C. to the 6th century A.D., including Sasanian Iran (224–651) and nine gold objects from Egypt.

The thirty-first annual lecture series focused on "Studies in Connoisseurship 1923–1983" as a continuation of the Freer's sixtieth anniversary theme. These lectures included: "Early American Collectors of Japanese Art," by Julia Meech-Pekarik, which was jointly sponsored with the Embassy of Japan; the Rutherford J. Gettens Memorial Lecture, "Red, Yellow and Blue: The Story of Three Asian Pigments," delivered by Elisabeth West FitzHugh; and "New Light on the Falling Rocket: Whistler at Cremorne Gardens," by David Park Curry.

The inaugural lecture for the John A. Pope Memorial Lecture Series was "Transitional Blue-and-White: Some Reflections on Style," by Margaret Medley, curator of the David Foundation, London.

The Freer's docent program proved so successful in terms of the increased number of visitors on tours and of the warm responses to the tours that a second docent class of ten received training to expand the effort. Another free leaflet on one aspect of the museum's collection—the Peacock Room and the Princess from the Land of Porcelain—was made available to visitors.

Among the visitors to the museum this year were the Humani-



Twelve-year-old Lucy D. Stickney of Charlestown, Massachusetts, embroidered this sampler (silk and paint on plain weave linen) in 1830. It was in the exhibition *Embroidered Samplers* at the Cooper-Hewitt Museum, February 21–May 27, 1984. (Bequest of Mrs. Henry E. Coe)



ties Education Study Team from the People's Republic of China, a delegation from the Shanghai Museum, and the retiring Secretary-General of NATO.

Professor Tadashi Kobayashi, of Gakushuin University, Tokyo, was the fourth Harold P. Stern Memorial Fund Fellow. He spent the summer studying the Freer's collection of Japanese genre paintings and Ukiyo-e paintings; a series of catalogues on this collection was planned.

A group of twenty-nine ancient Chinese ceramic objects, including three pieces from the Shang dynasty (ca. 1523–1028 B.C.) that have survived more than 3,000 years in perfect condition, was acquired through gift and purchase. The vessels fill out the Freer's collection of Chinese ceramics so that it now includes the full range of ceramic wares from the pre-Christian era. The rarest object is a burnished, wheel-turned footed jar of black clay made in Honan Province during the Shang dynasty; it was given in memory of Helen Dalling Ling, who gathered the collection together.

Other major donations include an eighteenth-century Mughal Indian dagger by Dr. Stephen R. Turner and selected library reference works by the Ellen Bayard Weedon Foundation. Donations from the Mary Livingston Griggs and Mary Griggs Burke Foundation and from the Clark Endowment Fund enabled the Freer Gallery to acquire important objects for the Japanese collections.

Subtle but substantial changes took place at the doors to the Freer this year. New wooden doors with Honduran mahogany and thermal glass in a design echoing the bronze courtyard doors now greet visitors at the north entrance. Visitors are also now able to enter the building through the south entrance on a regular basis.

### *Cooper-Hewitt Museum*

This year the Cooper-Hewitt continued to broaden its appeal to the public with innovative exhibitions and programs that typify the diversity of its interests. The museum has received numerous awards for its exhibitions, publications, and programs, but the award from the American Institute of Architects is among the most meaningful. The citation applauds the Cooper-Hewitt's "commitment to public awareness of the importance of design that is

exemplified by the quality of its collections, its far-reaching educational programs, and its willingness to explore the boundaries of modern thought while serving as an unmatched repository of historical materials and perspectives," and concludes that "no museum has done more to bring to the public's consciousness the role of architecture in the life of the nation."

### EXHIBITIONS

One of the more celebrated exhibitions in the past year was *Art of the European Goldsmith*, which began its national tour at the Cooper-Hewitt. Lent by the world-famed Schroder Collection in England, the exhibition concentrated on European masterworks in silver and gold from the seventeenth to the nineteenth century. The exhibition entitled *The Amsterdam School: Dutch Expressionist Architecture 1915-1930* was the first analysis of this important topic prepared for English-speaking audiences. Because of its first-time showing in this country, the *Amsterdam School* attracted wide attention among the architectural profession as well as the public, and served as an important documentation of this style and period.

The major architectural exhibition of the summer was *Manhattan Skyline: Skyscrapers Between the Wars*. The period between World War I and World War II was witness to a building boom in which the skyscraper played a dominant role, especially in New York. This exhibition examined many factors that contributed to the appeal of New York's soaring structures. Four other larger exhibitions mounted in 1984 demonstrated the museum's ability to explore less conventional areas of design. *American Enterprise: Nineteenth-Century Patent Models* was a large selection of colorful and unusual examples of patent models embodying both the history of American patent law and Yankee ingenuity. The museum staff was responsible for organizing this exhibition, which included over three-hundred and fifty models. *Embroidered Samplers* was a display of the finest embroidered samplers from the Cooper-Hewitt's own massive collection. *Design in the Service of Tea*, the major fall exhibition, included major international loans. A large survey of tea-related objects from ancient countries to contemporary Western forms was provocatively explored in a refreshing manner. And *Circles of the World: Traditional Arts of the Plains Indians* presented visitors with a rich array of native American design achievements in crafts objects drawn from the incomparable collections of the Denver Art Museum.

The smaller exhibitions in the last year included one devoted to drawings demonstrating the aesthetic theory evolved by the architectural sculptor *John De Cesare*, which relates musical and visual forms; a selection from the museum's extensive holdings of prints by the *Tiepolo* family; a presentation of a recently acquired collection of European *Damask* textiles; an exhibition devoted to intricately carved *Netsuke* figures from Japan; and, from the Minneapolis Institute of Arts' Doneghy Collection, an exhibition entitled *Finished in Beauty*, which presented utilitarian and ornamental silverwork by Indians of the American Southwest.

Every exhibition within the past year attracted local, national, and international press comments. *New York Magazine* described *The Amsterdam School* as an "eye opening look at the work of a lyrically creative group of architects, who for a while virtually dominated public building in Holland." The *New York Times* said about *Manhattan Skyline*: "a handsome exhibition . . . which reviews the skyscrapers of the 1920's and 1930's with thoroughness, accuracy and visual delight."

#### PUBLICATIONS

A major catalogue for the *Amsterdam School* was copublished by Cooper-Hewitt and MIT Press. With the aid of a generous grant from the New York law firm of Simpson, Thacher and Bartlett, an important and award-winning publication accompanying the *Patent Model* exhibition was produced by the museum and continues to be a popular seller. A *Stitch Guide* and a collection handbook on *Samplers* were published to accompany the exhibition, illustrating specimens from various European, American, and other cultures. Another volume in the Cooper-Hewitt's Smithsonian Illustrated Library of Antiques was completed on the subject of *Miniatures*, and distribution of the series continues through the Book-of-the-Month Club.

In keeping with the breadth of such wide-ranging interests, the museum also published *The Phenomenon of Change*. Edited by Lisa Taylor, director, *Change* includes sixty-five essays by distinguished scholars, politicians, architects, scientists, philosophers, and religious leaders. A less expensive tabloid format (popular with university students) and a soft-cover book were simultaneously published. The book is available to bookstores through Rizzoli International.

## PROGRAMS

May 1984 brought the first graduation of a class in the master's degree program on European decorative arts, a joint undertaking of the Cooper-Hewitt and Parsons School of Design. Sir Francis Watson, British scholar and a former director of London's Wallace Collection, spoke in a ceremony held at the museum. Sir Francis, as a 1983–1984 Regents' Fellow, was himself credited by director Lisa Taylor as having been an invaluable source of inspiration to the students and staff alike. George Nelson, one of America's preeminent industrial designers, was also named a Regents' Fellow in 1984 and spoke at a special lecture series on the phenomenon of a synthetic planet.

An international group of scholars arrived at the museum for two symposiums. One, organized by the Decorative Arts Department, concentrated its discussions and lectures on virtuoso metalwork in conjunction with the Schroder Collection exhibition. The other assembled experts in the field of textiles to discuss the European and American samplers that were on view at the museum at that time.

The range of programs at the Cooper-Hewitt is so broad as to include study of life in space to the examination of Chinese pavilions and their decorative arts. Many individuals—members and nonmembers alike—register for courses at the museum every quarter, drawn by lectures dealing with temporary exhibitions, the history of landscape, industrial and interior design, architectural criticism and history, and a variety of workshops and tours.

The internship program at the museum successfully continued this year with twelve undergraduate and graduate students assisting in all curatorial and administrative departments. Four of this year's interns were selected as Sidney and Celia Siegel Fellows. With additional grants from the New York State Council on the Arts, the museum continued to serve as a conservation advisory center for smaller institutions throughout the state, and was able to offer a paid internship in textile conservation. The Ford Foundation generally sponsored the fellowship of a doctoral candidate who researched, organized, and was responsible for the widely acclaimed *Manhattan Skyline* exhibition.

## COLLECTIONS MANAGEMENT

The active pace of Cooper-Hewitt's exhibition schedule required a substantial number of loans borrowed from private lenders and

domestic and international museums. Because of the museum's lack of space to exhibit its permanent collections, and because of the quantity of objects it holds, loans to other museums continued at an increasing rate. The first phase of a continuous inventory was completed on schedule. Each of the three major departments now possesses its own inventory technician to build more complete location guides and new records for objects added to the collections in future years.

Additional grants from the New York State Council on the Arts aided with exhibition costs for the Amsterdam exhibition and production costs for the Cooper-Hewitt *Stitch Guide* and *The Phenomenon of Change*, and allowed the museum to have for the first time its own in-house photographer. The latter position has been most helpful in documenting new objects entering the collection and replacing faded photographs and slides. In an important initiative, members of the Cooper-Hewitt Museum Council and the Board of Regents continued preparations in fiscal year 1984 for a capital campaign that will provide the museum with important improvements to its present facility in the near future.

More than 500 objects were accessioned by the museum in fiscal year 1984. All of the major departments received substantial additions to their collections. The decorative arts department accessioned the initial part of a gift from Marcia and William Goodman consisting of important pieces of American art pottery. The textiles department purchased a set of linen damask napkins with the Alice Beer Memorial Fund, and owing to the generosity of the artists and manufacturers, most of the fabrics in the *Contemporary Continuous Pattern* exhibition have been added to the collection. An exceptional illustrated book by Humphrey Repton on the Brighton Pavilion, published in 1808, was added to the prints and drawings department as a gift from Mrs. Christian Aall.

### *Hirshhorn Museum and Sculpture Garden*

The Hirshhorn Museum and Sculpture Garden (HMSG), one of the most important museums of contemporary art in this country, 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, and photography and a reference library.

Since its opening in October 1974, the museum has organized a great many important exhibitions, usually of material borrowed from other institutions and from private collectors. There are also exhibitions drawn from the museum's permanent collection. Many exhibitions organized by the HMSG are circulated to other museums, and there are frequent loans of individual works of art to other museums.

The first major exhibition for 1984 was *Dreams and Nightmares: Utopian Visions in Modern Art*, December 8, 1983–February 12, 1984. Included were 136 works by sixty-two American and European artists of the twentieth century. This 1984-theme exhibition surveyed artists' hopes—and fears—for the twentieth century, beginning with the optimistic visions of Futurism, Expressionism, the Russian Avant-Garde, Purism, Bauhaus, De Stijl, and America's utopian developments, and ending with pessimistic images of alienation and holocaust. Artists represented included Piet Mondrian, Fernand Léger, Hugh Ferriss, Paolo Soleri, George Grosz, George Tooker, and Robert Morris. This was the first of a series of Smithsonian events celebrating the Orwellian year of 1984. Valerie Fletcher, the curator who organized the exhibition, gave a public lecture on December 11, 1983.

The next major exhibition was *Drawings: 1974–1984*, March 15–May 13, 1984. It was the first of a two-part celebration of the tenth anniversary of the museum's opening to the public. International developments in the last ten years were the focus of this exhibition of 148 works on paper. Thirty artists were represented, including Avigdor Arikha, Balthus, Christo, Chuck Close, Willem de Kooning, Jim Dine, Jean Dubuffet, David Hockney, Jasper Johns, R. B. Kitaj, Claes Oldenburg, and Larry Rivers. The Smithsonian Resident Associate Program sponsored a lecture by Christo on May 13, 1984, in which the artist described his work. This lecture was introduced by Frank B. Gettings, curator of the exhibition.

*German Expressionist Sculpture* appeared from April 3 to June 17, 1984. This was the only East Coast showing of a major exhibition organized by the Los Angeles County Museum of Art, the first ever to examine German Expressionist sculpture, a little-known but vital development in early twentieth-century art. Included were 125 bronze, wood, stone, plaster, and porcelain sculptures, and twenty-five related works on paper.

*Artistic Collaboration in the Twentieth Century*, June 9–August 19, 1984, consisted of 108 works created by some seventy teams of artists between 1913 and 1984. Edouard Roditi lectured on June 13, 1984, on “Memories of the Surrealists.” After closing at the Hirshhorn Museum, this exhibition travels to Milwaukee, Wisconsin, and Louisville, Kentucky.

Finally, a major exhibition, the second part of the tenth-anniversary celebration, *Content: A Contemporary Focus, 1974–1984*, opened on October 4, 1984. Included were 185 paintings, sculptures, drawings, constructions, photographs, mixed-media installations, and presentations of film and video art by 147 artists, working in a full range of contemporary styles. The exhibition’s theme—the reintroduction of content as a central concern in recent art—reveals an underlying continuity in the diverse art forms of the last ten years.

The Resident Associate Program presented “Four on the Scene” on October 4, 1984, in connection with the *Content* exhibition. Introduced by curators Phyllis Rosenzweig and Howard Fox were artists Vito Acconci, Sandro Chia, Jenny Holzer, and David Salle, who discussed their recent works.

Smaller exhibitions, most of them organized by the museum’s staff and drawn from the permanent collection, included: *Direct Carving in Modern Sculpture*, October 6–November 27, 1983; *Aspects of Color*, October 15, 1983–March 6, 1984; *Art from Italy: Selections from the Museum’s Collection*, February 1–April 4, 1984; and *European Modernism: Selections from the Museum’s Collection*, September 13, 1984–January 13, 1985.

As the nature of the HMSG’s permanent collection has become more widely known, requests for loans from the collection have increased. In fiscal year 1984, 254 objects were lent to sixty-three institutions. Among these works were eleven paintings and drawings to the Alexandria Museum of Visual Art, Alexandria, Louisiana; eight paintings to the Hillwood Art Gallery, C. W. Post College, Greenvale, New York; seven paintings to the Tampa Museum, Tampa, Florida; six paintings to the Mansfield Art Center, Mansfield, Ohio; and four sculptures by Henry Moore to the Metropolitan Museum of Art, New York.

A sampling of loans to foreign exhibitors includes ten paintings to the Akademie der Kunst, Berlin, West Germany, for a Willem de Kooning retrospective; five large sculptures for an inaugural exhibition at the Museum of Modern Art, Shiga, Japan; two paintings by Max Beckmann to the Museen der Stadt, Cologne, West

Germany; and a painting and a drawing by Ben Shahn to the Ministry of Culture, Madrid, Spain.

The Museum has also lent two large groups of art works for special exhibition: sixty-six sculptures to the Oklahoma Museum of Art, Oklahoma City; and thirty-four paintings, drawings, and documentary photographs to the Columbus Museum of Art, Columbus, Ohio. Finally, the museum lent twenty paintings and sculptures to the Smithsonian Institution Traveling Exhibition Service for *Treasures from the Smithsonian* in Edinburgh, Scotland.

Acquisitions are vital to any museum, but especially to a museum of contemporary art. This year the HMSG purchased thirteen works of art, including twelve purchased with appropriated funds and a drawing acquired with private funds. The purchases with appropriated funds included Avigdor Arikha's *The Square in June* (1983) and James Wolfe's *Shembo* (1983). Also, important additions were made to the museum's outstanding nineteenth-century sculpture collection, including *Mother and Child* (c. 1874) by Aimé-Jules Dalou and *Fruchard* (c. 1832-35) by Honoré Daumier.

To increase visitor appreciation and understanding of modern art, a variety of educational material has been produced, including explanatory wall labels and brochures. The latter range from a single page to illustrated minicatalogs and are distributed free of charge to the public. A fifteen-minute slide presentation, entitled "Elements of Art: Color," was installed from October 1983 until March 1984 in a small theater in the third-floor galleries of the museum. This was the second program in the "Elements of Art" series. Many of the works of art featured in the slide presentation were displayed in the adjacent gallery for visitors' viewing.

The museum also presents a film series, with lunchtime documentaries on art and artists, evening films by independent filmmakers, and Saturday films for young people. Whenever possible, the film series reflects the current exhibitions. Other events in the auditorium are concerts by the 20th-Century Consort and lectures by artists, critics, and curators.

### *Joseph Henry Papers*

The manuscript of the fifth volume of the letterpress edition of the Joseph Henry Papers, documenting the years 1841-43, was



delivered to the Smithsonian Institution Press. In addition, considerable progress was made on the sixth volume, the last dealing with Henry's years at Princeton.

Preliminary efforts were made in the process of automating the editorial procedures of the Henry Papers. This process, which will not be completed until sometime in 1985, will streamline the preparation of letterpress manuscripts and make information retrieval much easier and faster.

The project continued its sponsorship of the Nineteenth Century Seminar, once again hosting presentations that ranged over a broad spectrum of historical topics, including the history of art, science and technology, and American cultural history.

Nathan Reingold, editor of the Henry Papers, organized a symposium as part of the Smithsonian presence at the Edinburgh Festival. Entitled "The Anglo-American World of Science and Technology, 1750-1850," the symposium was in honor of the Smithson Bequest. Reingold was also one of the speakers. Earlier, he gave a presentation entitled "Metro-Goldwyn-Mayer Meets the Atom Bomb" at a Paris conference on the popularization of science.

Also very active professionally was Paul Theerman, who presented a paper on Maxwell at the annual meeting of the History of Science Society, and another, at Sweet Briar College, on Newton's nineteenth-century reputation.

### *National Museum of African Art*

Fiscal year 1984 at the National Museum of African Art (NMAfA) was devoted primarily to the consolidation and strengthening of its resources. It was also a year for testing new ideas. Increased professionalism, in-depth scholarship, and heightened creativity became the touchstones for measuring the old and the new. Exhibitions, collection development and use, research and educational opportunities were and must continue to be subjected to scrutiny as the museum prepares for its move to the Center for African, Asian, and Near Eastern Cultures. The goal is to advance knowledge and public understanding of African art traditions and cultures.

The temporary special exhibition schedule opened with *African Islam*. It was the first time this topic had been explored by a

major American museum. Prepared by curator Dr. René Bravmann, professor of art history, University of Washington, Seattle, the exhibition examined the social and historical dynamics, as well as the aesthetic response of Africans, to the appearance of Islam south of the Mediterranean littoral. More than 100 examples of art, dating from the nineteenth and twentieth centuries, were generously lent by U.S. museums and private collectors. The objects included textiles, sculpture, amulets, jewelry, Korans, and writing boards. The catalogue, written by Dr. Bravmann and copublished by the Smithsonian Institution Press and Ethnographica Ltd., serves as an introduction to this seriously neglected area of African art studies.

Through its temporary exhibitions and related public programs, the museum continued to explore the diversity and aesthetic excellence of African art traditions. Included among these were *Ethiopia: The Christian Art of an African Nation*, circulated by the Smithsonian Institution Traveling Exhibition Service; *African Mankala*, organized by curator Roslyn Walker; and *Patterns and Forms*, selections from the permanent collection, organized by curator Lydia Puccinelli. In addition, four small exhibitions, focusing on objects in the museum's permanent collection, were curated by individual staff members (G. Jennings and E. Lifschitz, Education Department; R. Sieber, associate director for Collections and Research; S. Williams, director). Public response to this exhibition series was enthusiastic. Thus, the museum plans to continue the experimental exhibition program that provides in-depth investigation of a single work of African art with extensive explanatory labels, photo panels, and accompanying brochures prepared by the staff. It offers a unique opportunity to increase collection accessibility in spite of space limitations in the existing facility.

Institutions to which the museum lent a total of forty-four objects for exhibitions included Kalamazoo Institute of Arts, Michigan; Foundation for Cross Cultural Understanding, Washington, D.C.; University of Maryland Art Gallery, College Park; Field Museum of Natural History, Chicago; Birmingham Museum of Art, Alabama; Mt. Holyoke College, South Hadley, Massachusetts; Museum of Cultural History, University of California, Los Angeles; and North Carolina Central University Museum, Durham.

Through its acquisition program, the museum's permanent collection was significantly enriched by 137 accessions, including as gifts a collection of twenty-six figurative metal objects from the



Roslyn Walker (left), curator of *African Mankala*, was one of the participants in the Festival of African Games in the courtyard of the National Museum of African Art, June 23, 1984. (Photograph by Mark Avino)

western region of the Sudan, a collection of sixty-two examples of Ndebele (southern Africa) beadwork, an unusually fine Kota (Gabon) reliquary guardian figure, an early collection of textiles and metal ornaments from Zaire, a Yoruba (Nigeria) fan, and an embroidered robe (Chad).

One of the major collection accessions was a rare Tetela (Zaire) mask collected in 1924 by an American missionary who lived in the former Belgian Congo. Its acquisition by purchase was made possible by the James Smithson Society. This mask, one of two such documented examples in public museum collections, exemplifies a lost Tetela aesthetic, and is important historically and culturally. Other important acquisitions by purchase during the year included: a pair of Fulani (Mali) gold earrings (for which funds were donated in part by the Friends of the National Museum of African Art and Robert and Nancy Nooter); a Sono (Guinea) brass staff finial; a Yoruba (Nigeria) wooden divination board; and three additions to the Zairian textile holdings.

The Department of Education and Research continued to serve a large audience, ranging from elementary and secondary school groups to senior citizens and individual visitors. Their enjoyment and education were greatly enhanced by the museum's fifty-seven docents, who volunteer their time and effectively share their knowledge about each exhibition. Many of the Education Department's public programs, special workshops, and teaching guides are conceived each year to increase understanding of special exhibitions. During 1984 a particularly thorough guide for secondary school teachers was developed and published to accompany the *African Islam* exhibition. In addition, a number of distinguished art historians and anthropologists were invited to lecture on a variety of important topics, many of which were directly related to the Special Exhibition Program. Among the universities represented were the University of Washington, Seattle; Howard University, Washington, D.C.; University of Iowa; University of Ibadan, Nigeria; Bayero University, Kano, Nigeria; and the Center for Byzantine Studies, Dumbarton Oaks/Harvard University. Four interns (George Washington University, University of Iowa, San Jose State University, Howard University) were placed for museum training in the museum's Registration, Curatorial, Education and Research, and Public Information departments, respectively.

As a part of its research activities, the museum was honored to have in residence as a Regents Fellow Dr. Ekpo Eyo, director of

the Nigerian National Museums and Federal Department of Antiquities, Lagos. During his residency, Dr. Eyo worked on his forthcoming volume devoted to the art of Owo, a Yoruba town and the site of an important excavation he conducted in 1969, which revealed a corpus of extraordinary works of art tentatively dated to the fifteenth century.

The Eliot Elisofon Photographic Archive is one of the museum's strongest research components. Through grants received from the Women's Committee of the Smithsonian Associates and the Friends of the National Museum of African Art, five documentary films were acquired for the archive. Produced in 1982 by the National Ministry of Information of the Ivory Coast in consultation with African and Western anthropologists, these films provide a sound contextual basis for understanding several of the most important Ivory Coast visual traditions.

In association with the Smithsonian's Office of Fellowships and Grants, a residency fellowship program in the humanities was awarded by the Rockefeller Foundation to the National Museum of African Art. For the first time in its history, NMAFA will be able to make its collection and research facilities the focus of advanced scholarly research. Postdoctoral scholars in African art history and anthropology (emphasizing material culture) may carry out their research in the collections or on topics that could initiate scholarly symposia, exhibitions, or other major museum activities. The program will be administered by the Smithsonian's Office of Fellowships and Grants and will begin in the fall of 1985. Appointments will extend for one year.

During 1984 the museum's Union Catalogue Project advanced steadily. Placing the permanent African collection holdings on computer, coordinated by the National Museum of Natural History, provides an invaluable resource for research work within the museum, throughout the Smithsonian, and elsewhere. The Union catalogue has addressed the need for terminology standardization and is using a vocabulary uniquely suited to African art research. The Getty Art and Architectural Thesaurus Program became interested in the NMAFA Union catalogue in 1984, viewing it as being ideally suited to incorporate AAT terminology. This cooperative effort is progressing under the guidance of Roy Sieber, NMAFA associate director for Collections and Research. Dr. Sieber and Janet Stanley, NMAFA librarian, are consultants to the Getty Program.

On December 20, 1983, the twentieth anniversary celebration of

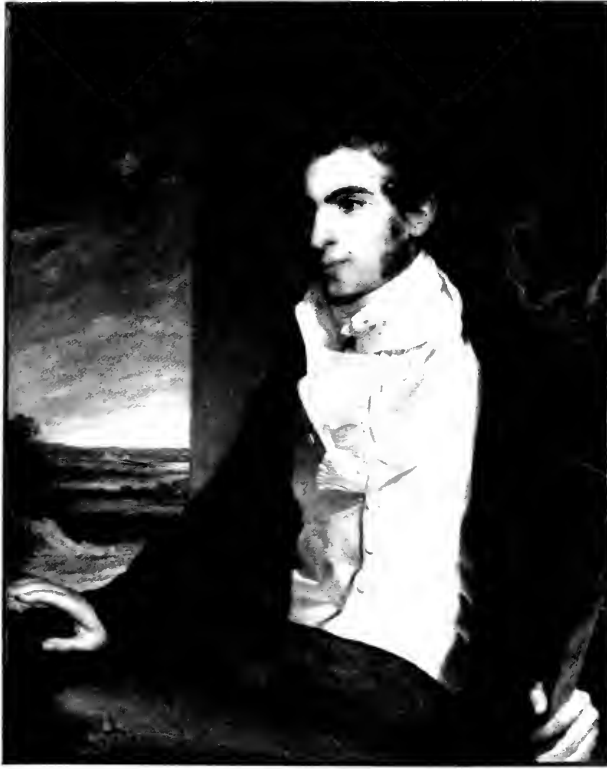
the Organization of African Unity was held at the museum. Guests included ambassadors of many African nations, Secretary Ripley, Assistant Secretary of State for African Affairs Chester Crocker, and the Smithsonian Assistant Secretary for History and Art, John Reinhardt.

In addition, the museum received foreign visitors from Belgium, Benin, Botswana, Burkina Faso (Upper Volta), Cameroon, Cape Verde, Central African Republic, Federal Republic of Germany (West Germany), German Democratic Republic (East Germany), Ghana, Great Britain, Holland, Israel, Lebanon, Nigeria, New Zealand, South Africa, Switzerland, and Tanzania.

### *National Museum of American Art*

The public exhibition galleries of the National Museum of American Art were transformed during the past year, as staff designers, work crews, and curators completed the first total refurbishment and reinstallation of the collection since 1968, when the Old Patent Office Building was dedicated as a museum. The project began with the curatorial review of the entire permanent collection to select objects for a flexibly chronological installation tracing the development of 250 years of American art. In the process, many artworks were cleaned and conserved; frames and pedestals were replaced or restored. Newly constructed walls permit more artworks to be shown than ever before; improved natural and artificial lighting, widened doorways, and vibrant new color schemes enliven the appearance of the interior spaces. The new installation opened to the public on June 11; that evening the Museum co-hosted with other Smithsonian museums a reception for the thousands of museum professionals from across the country who had come to Washington for the annual meeting of the American Association of Museums.

On June 11, also, the gift of 169 paintings, sculptures, and drawings from the Sara Robey Foundation Collection—the most significant gift to the museum in modern times—was announced. The collection includes masterworks of twentieth-century art, by such artists as Charles Burchfield, Paul Cadmus, Stuart Davis, Edward Hopper, Yasuo Kuniyoshi, Gaston Lachaise, Jacob Lawrence, and Theodore Roszak, among many others. An exhibition of the collection is planned for spring of 1987.



Thomas Sully's 1812–13 oil on canvas, *Daniel MaMotte* —a superb example of the artist's early work—was a gift to the National Museum of American Art from Mr. and Mrs. Ferdinand LaMotte III.

Man Ray's 1932 *Self-Portrait* is one of twenty-three works given to the National Museum of American Art by the artist's widow, Juliet Man Ray. Referring to the death masks of historical figures and surrounded by the ephemera of yesterday's news, it becomes a witty interpretation of the artist's "entombment" in his work.



More than a thousand artworks were accessioned this year, expanding considerably the museum's already rich and diverse holdings. Outstanding gifts include a Thomas Sully portrait of 1812–1813, from Mr. and Mrs. Daniel LaMotte III; twenty-three artworks by Man Ray, from Juliet Man Ray; *Callers*, 1916, by Walter Ufer, gift of Mr. and Mrs. R. Crosby Kemper; and a wood construction by Robert Indiana, a gift of the artist. The museum purchased paintings by Asher B. Durand, Hugh Bolton-Jones, Robert Indiana, and Ed Moses; sculpture by Richard Stankiewicz; miniatures by Edward Malbone and John Trumbull; graphic art by Helen Frankenthaler, Frederick Waugh, and William Wiley; photographs by Harry Callahan and Ray Metzker; craft objects by Robert Ebendorf and Margaret Craver, to name only a few.

Before the galleries were closed for reinstallation last fall, the museum presented *Sawtooths and Other Ranges of Imagination: Contemporary Art from Idaho*. The exhibition and catalogue, prepared by Barbara Shissler Nosanow, assistant director for Museum Programs, continued the museum's commitment to showing art from various regions of the United States. Curator Janet Altic Flint rediscovered the *Provincetown Printers*, a group dedicated to innovative use of the wood-block printing process during the early decades of the twentieth century, in an exhibition and catalogue that enjoyed great popular appeal.

Other special exhibitions opened in late spring and summer, 1984, to complement the new installations. Portraits and subject pictures by the native painter Erastus Salisbury Field appeared in an exhibition organized by the Springfield (Massachusetts) Art Museum, jointly sponsored in Washington by the National Museum of American Art and the National Portrait Gallery. *Exposed and Developed: Photography Sponsored by the National Endowment for the Arts* introduced the museum's collection of contemporary American photography. The exhibition and catalogue, prepared by curator Merry Amanda Foresta, and the related symposium explored issues in recent photography. Robert Indiana's constructions from the early 1960s were featured in *Wood Works*, an exhibition and catalogue prepared by curator Virginia M. Mecklenburg. Robert Indiana attended the opening and spoke on the development of his art. Attitudes toward modernism during the Truman years were the subject of *Advancing American Art: Politics and Aesthetics in the State Department Exhibition, 1946–1948*, circulated by the Montgomery (Alabama) Museum of Art. *The Prints of Howard Norton Cook*, assembled by Janet Altic



Flint, presented selections from the large holdings of his works in the museum. A selection of the finest drawings and prints from the graphic arts collection was on view from June through December.

The National Art Gallery of Wellington, New Zealand, graciously lent for three years one of John Singleton Copley's finest colonial portraits—*Mrs. Humphrey Devereux*. Painted in 1770 and exhibited that year in England, the painting has been shown only once before in America, in 1965. In honor of the painting's return to its country of origin, New Zealand Ambassador Sir Lancelot Adams-Schneider joined Ambassador Christopher H. Phillips, chair of the New Zealand-United States Art Foundation, in a brief ceremony at the museum on June 12.

The Renwick Gallery presented *The Flexible Medium*, an installation of fabric and fiber art from the museum's permanent collection of craft objects. Other exhibitions at the Renwick Gallery highlighted fans from the eighteenth through the twentieth century, functional objects designed by Russel Wright, art nouveau metalwork and furniture by Edward Colonna, art glass by Harvey K. Littleton, and contemporary Australian ceramics.

The six soirees at Barney Studio House this season included a talk by composer Virgil Thomson. Next year's offerings will explore Alice Pike Barney's contacts with England. An exhibition has been organized by curator Jean Lewton of *Pastel Portraits from Studio House*, to open in December 1984, with portraits of Barney's exotic acquaintances from high society and art circles.

In addition to a broad spectrum of public events presented during the year, the Division of Museum Programs developed educational materials on "The Family in American Art" for use in public school systems, aided by a grant from Chesebrough-Pond's, Inc. Performers Ruby Dee and Ossie Davis appeared at the Kennedy Center in a benefit for the museum's extensive festival of Afro-American culture, *Changing Traditions*, which opens on January 15, 1985.

Research resources at the museum continued to provide unparalleled opportunities to scholars of American art, including both resident fellows—fifteen postdoctoral and doctoral candidates from eleven universities—and eight postgraduate interns from across the country. Plans have been laid for an Inventory of American Sculpture, comparable to the museum's much-heralded Inventory of American Painting to 1914. The museum continued to take a

pioneering role in the computerization of collections and research materials under the guidance of Eleanor Fink and James L. Yarnell.

The current fiscal year saw the decentralization of internal operating and program budgets, with allocations to the three museum divisions allowing for greater flexibility and advance planning for projects. The Division of Museum Resources, headed by assistant director Charles J. Robertson, coordinated the new budgeting plan. Staff restructuring, begun in the previous year, proceeded with the creation of the position of Chief Curator and Assistant Director for the Curatorial Division; Dr. Elizabeth Broun was hired to fill this position. Harry Lowe, deputy director and former acting director of the museum, retired in January 1984, and was offered moving tributes by members of the staff for his long and dedicated service to the Smithsonian.

### *National Museum of American History*

The National Museum of American History (NMAH) remade itself inside and out this fiscal year, creating a more enjoyable museum for the public, new performance and exhibits spaces, and several new exhibitions. Its ten-year plan for a reinstallation of the main exhibition galleries on the first and second floors proceeded with the beginning of design and production for the upcoming exhibition *After the Revolution: Everyday Life in America, 1780-1800*, and its departments and divisions continued their scholarly contributions to American history.

The major remodeling projects began on March 1, 1984, with the opening of the new Museum Shop and Bookstore. The striking design features a broad, marble, glass-walled staircase that descends to the large, airy shop below. Renovations in NMAH continued with the opening of the new Palm Court off the first floor Pendulum Hall on May 4. A re-creation of a turn-of-the-century palm court, this new area gives visitors a comfortable place to rest, relax, perhaps enjoy a soda or sundae in the adjacent ice cream parlor, and listen to music from a newly acquired Mason and Hamlin baby grand reproducing piano. Two exhibits formerly on display elsewhere in the museum, the Stohlman's Confectionary Shop of the 1890s and a 1902 Horn and Hardart Automat, line the walls of the Palm Court.

On the museum's west grounds, the thirty-five-ton Calder stabile, *The Gwenfritz*, was moved from its location in the amphitheater to a more visible spot at the corner of Constitution Avenue and Fourteenth Street. In its place the museum erected the Jacksonville Bandstand, a structure built in 1879 on the grounds of the Jacksonville State Hospital in Jacksonville, Illinois. A gift of the state of Illinois, the bandstand was dismantled by museum staff at its site in May 1983 and rebuilt as originally surveyed. The structure affords a new performance space for the museum, and since its dedication on July 4th has already been the site of eight concerts, with outstanding performances by musical ensembles such as the Bass Wingates Brass Band from Great Britain, the Ceremonial Brass Quintet of the U.S. Army Band, and the U.S. Marine Corps Band. The relocation of the Calder Stabile and the installation of the Jacksonville Bandstand were both made possible by a generous gift from the Morris and Gwendolyn Cafritz Foundation.

The museum's ten-year reinstallation program for the major exhibitions on its first two floors proceeded with design and production phases of *After the Revolution: Everyday Life in America 1780-1800*, to open in the fall of 1985. The script for the second exhibition in the reinstallation program, *Engines of Change: The Industrial Revolution in America*, has been completed and approved; the exhibition will open in the fall of 1986. Research and conservation are under way for *Materials in America*, a third major reinstallation, which will open later in this decade and explore the basic materials that are the building blocks of our culture.

Several other important and popular exhibitions opened at the museum this year. Nancy Knight of the Division of Medical Sciences and Deborah Warner, curator with the Division of Physical Sciences, organized *Pain and Its Relief*, a look at mankind's attempts to understand, combat, and overcome pain. The exhibition, which opened on October 14, 1983, was made possible by a grant from the American Society of Anesthesiologists. October 25, 1983, marked the opening of *The Naming of America*, an exhibition featuring the only surviving copy of German cartographer Martin Waldseemüller's World Map of 1507—the map on which the name "America" was probably first applied to the New World. The exhibition was the joint effort of Silvio Bedini of the Dibner Library, Anne Golovin of the Division of Domestic Life, and Elizabeth Harris and Helena Wright of the Division of Graphic Arts.

The World Map of 1507 had never before left Germany; the Erbgraf Maximilian Willibald zu Waldburg-Wolfegg graciously consented to loan the map to the museum for this exhibition. *Inventing Standard Time*, which celebrated the centennial of the establishment of standard time in the United States and Canada, opened on November 17, 1983. Organized by Carlene Stephens, newly appointed curator in the Division of Mechanisms, the exhibition told the story of how in the late nineteenth century the United States gradually came to institute a standard system of time zones to replace a confusing welter of local times. The Christmas season again brought the *Trees of Christmas* exhibition to the museum. Produced by the Department of Horticulture, the display featured twelve trees bedecked with handcrafted ornaments to illustrate various crafts, traditions, and storybook themes.

From June 27 to August 19, 1984, the museum hosted *South-eastern Potteries*, a temporary exhibition produced by the Smithsonian Institution Traveling Exhibition Service (SITES). Objects ranged from unglazed earthenware strawberry jars to highly finished decorative vases, and reflected continuing traditions of nearly two centuries of pottery making as well as the evolution of new approaches to the craft. Another SITES exhibition, *Yesterday's Tomorrows: Past Visions of America's Future*, opened in the museum's new temporary exhibition hall on August 9. *Yesterday's Tomorrows* displayed more than 300 models, magazines, toys, drawings, photographs, and other artifacts, and examined communities, homes, transportation, and weapons and warfare of the future, among other subjects. The last exhibition to open this fiscal year was *Eleanor Roosevelt: First Person Singular*, a centennial tribute to one of America's most remarkable women. Organized by Howard Morrison of the Department of Public Programs, with the help of the Division of Political History, the exhibition used more than one hundred photographs, documents, and objects to look at the private life and the public accomplishments of Eleanor Roosevelt. The first of the 1984-85 Doubleday Lecture Series programs marked the opening of the exhibit. Entitled "A Centenary Tribute to Eleanor Roosevelt," it featured radio commentator Susan Stamberg and actress Jean Stapleton examining the life of the "First Lady of the World."

In addition to these many larger temporary exhibitions, the museum continued its very popular series of "Cases of the Month," small, one- or two-case exhibitions on a variety of themes, divided roughly between the two curatorial departments

of the museum, the Department of Social and Cultural History and the Department of the History of Science and Technology.

The museum produced fifteen of these small exhibitions this year, among them *Geometric Models*, which displayed a variety of elegant and often intricate models used for education, entertainment, and research; *Early Vitamin Technology*, a brief history of the growth of the use of vitamins and the technologies that made their production possible; *Microelectronics as History*, a look at the early advances in transistors and computer components that underlie today's microelectronics revolution; *Germans in America: Three Hundred Years of Innovation and Tradition*, which presented some of the wide variety of inventions, scientific advances, products, and cultural traditions that Germans and German-Americans have contributed to American culture; *Lura Woodside Watkins: Cultural Historian 1887-1982*, which focused on the life and work of a pioneer cultural historian by highlighting aspects of her collecting, publications, archeological investigations, and close relationship with the National Museum of American History; and *The Faris and Yamna Naff Arab-American Collection*, a case displaying a few of the objects collected by Dr. Alixa Naff and given to the Smithsonian Institution this year to begin an expanded effort at collecting and preserving the history of Arab-Americans in this country.

Two other divisions of the museum organized small exhibitions of their own this past year: the Archives Center produced *Valentine's Day Images in Commercial Advertising*, a display that used images from the center's Warshaw Collection of Business Americana to reveal how Valentine's Day images have appeared in American advertising over the past century; and *Conservation: Problems and Solutions*, organized jointly by the Division of Conservation and the Department of Social and Cultural History to show visitors how to protect valuable objects from environmental extremes, pests, and mishaps.

In addition to creating its own exhibitions, the museum also contributed to several shows elsewhere, most notably the patent model exhibition at the Smithsonian's Cooper-Hewitt Museum in New York City and the *Treasures from the Smithsonian* exhibition held as part of the Edinburgh Festival. Bernice Johnson Reagon of the Program in Black American Culture and James Weaver and Kenneth Slowik of the Department of Public Programs performed at the Scottish festival. In the spring of 1984 the museum hosted two symposia in aspects of American culture for fellows and mas-

ter teachers honored by the German Marshall Fund. Michael Beschloss of the Eisenhower Institute produced *Harry Truman: A Self-Portrait in Film*, a glimpse of the life of Harry Truman from his Missouri boyhood to the presidency, combining Truman's own words with the sights and sounds of the era.

In addition to organizing exhibitions such as *The Naming of America, Pain and Its Relief*, and the many "Cases of the Month," the two major curatorial departments of the museum moved forward with the scholarly work of investigating American history, publishing articles in their fields, acquiring important new objects, and sponsoring and attending symposia, conferences, and seminars.

The Department of the History of Science and Technology hosted specialized meetings on pharmacy and ophthalmology, and sessions of the Society for the History of Technology convention. Curators and historians from the department spoke at conferences across the United States and abroad. Barbara Melosh of the Division of Medical Sciences presented "The Iconography of Gender: Manhood and Womanhood in New Deal Art" at the Smith College-Smithsonian Conference on the Convention of Gender; Pete Daniel of the Division of Extractive Industries gave a lecture entitled "The New Deal, Southern Agriculture, and Economic Change" at the Chancellor's Symposium on Southern History at the University of Mississippi; Harold Langley of the Division of Armed Forces History spoke on "Churchill and Roosevelt; The Anglo-American Relationship" to the White House Fellows at the British Embassy; Steven Lubar, historian with the department, traveled to England to deliver talks on the *Engines of Change* exhibition at the Science Museum in London and at Ironbridge Gorge Museum in Telford; Robert Vogel of the Division of Mechanical and Civil Engineering spoke on industrial archeology in Baltimore before the Society for Industrial Archeology; Arthur Molella, chairman of the Department of the History of Science and Technology, spoke to the Medical University of South Carolina on "Science and Technology Exhibits at the Smithsonian: Myth or History?"; Audrey B. Davis of the Division of Medical Sciences presented "Women and the Medical Enterprise" at the American Association for the History of Medicine in San Francisco; and Deborah H. Warner of the Division of Physical Sciences presented "Rowland's Gratings, Contemporary Technology" at the Rowland Centennial at the Johns Hopkins University. The department also continued to sponsor *Technology and Culture*, the

quarterly journal of the Society for the History of Technology. A consolidation within the department combined the Divisions of Naval History and Military History into a single Division of Armed Forces History.

Acquisitions of the department ranged from the massive to the minuscule, and included an RS 1 Diesel locomotive, an early example of the first generation of American diesel locomotives, now on loan to the Strasburg Railway Museum in Pennsylvania; an ACTA scanner, the world's first computerized whole body scanner, commonly known as the CAT scanner; a Whitworth engine lathe of about 1865; a nineteenth-century mule-powered cotton gin; two colored engraved prints of American Army uniforms of the Revolutionary War era published in Germany in 1784; nineteenth-century American surveying instruments; and a Bakelizer used to mix the first batch of the first completely synthetic plastic. With a \$75,000 Regent's grant, the Division of Mechanisms purchased two Renaissance automata, a lady lute player and a reclining dog.

The staff of the Department of Social and Cultural History was no less active or productive. The Division of Graphic Arts hosted the biennial conference of the American Typecasters Fellowship, which attracted participants from five countries, and at which Stan Nelson and Elizabeth Harris of the division gave papers; the Division of Musical Instruments helped present the national meetings of the American Federation of Violin and Bow Makers in April; the Division of Costume and Smith College of Northampton, Massachusetts, jointly sponsored the conference on Conventions of Gender, held at Smith in February.

Curators, specialists, and historians in the department continued their scholarship by presenting papers both in the United States and abroad. Gary Kulik, chairman of the Department of Social and Cultural History, delivered papers at Moses Brown School, Providence, Rhode Island; the University of Paris; and the Amerika Institute, University of Munich; Elizabeth Harris of the Division of Graphic Arts gave a one-week course on exhibiting rare books at Columbia University Rare Book School; Margaret Klaphor, curator emeritus of the Division of Political History, lectured on dresses of the First Ladies of the White House at the Philadelphia College of Science and Textiles and participated in the First Ladies Symposium held at the Gerald R. Ford Museum in Grand Rapids, Michigan; Barbara Clark Smith of the Division of Domestic Life presented a paper on ways of viewing the exhibition *After the Revolution: Everyday Life in America 1780–1800* at the annual

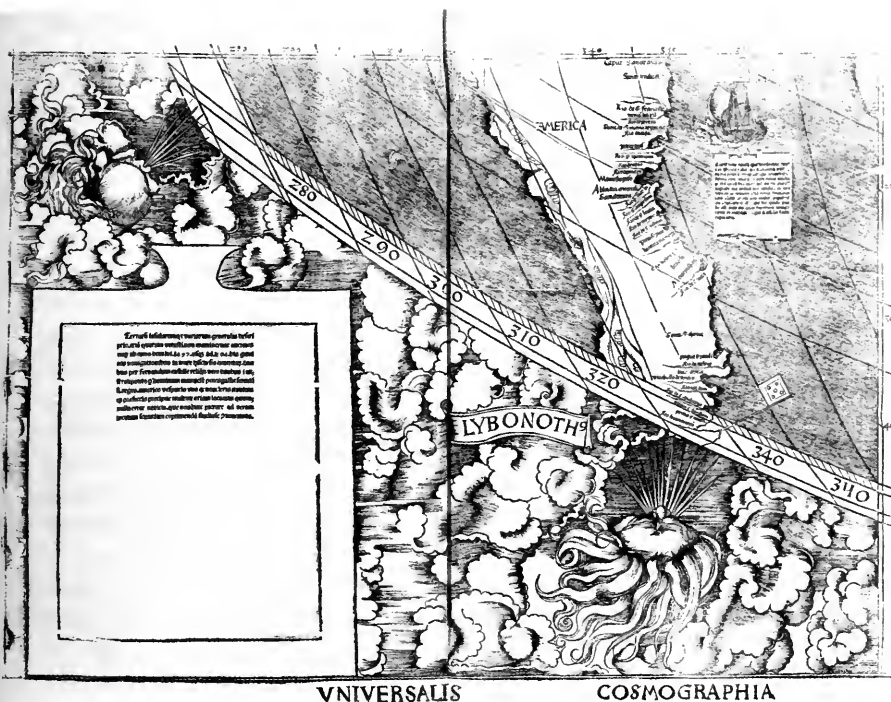
convention of the Organization of American Historians in April 1984; Fath Davis Ruffins and William Pretzer, both of the Life in America project, gave papers at the same conference entitled, respectively, "History in Three Dimensions: The Exhibition as a Medium for Teaching" and "Looking to Learn: Form and Content in a Museum Exhibit."

Departmental acquisitions included a Philadelphia printing press of about 1840; a nineteenth-century pin-type writing box for the blind; the more than one hundred objects and four hundred documents of the Faris and Yamna Naff Arab-American Collection; a series of more than one hundred outstanding tintypes; political campaign materials from the 1984 New Hampshire primary and the Democratic and Republican National Conventions; original art and posters from World War II bond campaigns; a dress of Mrs. James Monroe; a dress worn by Ginger Rogers in the movie *Top Hat*; J.R.'s hat from the television series "Dallas"; the red dress worn by Dustin Hoffman in the movie *Tootsie*; a 1930 Steinway grand piano fitted with Duo-Art mechanism; a Chickering-Ampico grand piano; and a violin made by Guadagnini in 1752. Staff changes at the department included the retirement of curator Margaret Klapthor in December 1983 after many years in the Division of Political History, and the appointments of Susan Myers as vice-chair of the department and Barbara Coffee as collections manager.

A reorganization at NMAH produced a newly constituted Department of Public Programs under assistant director Josiah Hatch. The new department comprises divisions of education, publications, the Program in Black American Culture, performances, production, and the Office of Public Affairs.

The department presented a diverse season of concerts and public programs that contributed new perspectives on current exhibitions and topics related to the national collections. In December the Holiday Celebration, which focused on ethnic diversity in the United States, presented music, crafts, and foods of many ethnic groups. The presentations and performances, held daily from December 26 to 31, included everything from puppet shows and woodcarving to gospel music and madrigals. Regularly scheduled free informal concerts, lectures, films, and demonstrations were vital aspects of the biweekly weekend series Saturday Arter Noon, while Saturday Live and Mostly Music, coproduced with the Division of Musical Instruments, offered weekly concerts and demonstrations of the instruments in the museum's collections.





This is one of the twelve sheets of Waldseemüller's World Map—the first map on which the newly discovered continent was named "America." The only surviving copy of this monumental work went on exhibit for the first time, at the National Museum of American History, through the courtesy of its owner, Count Waldburg.

A table made at the Val-Kill Furniture Shop was one of more than 100 objects, documents, and photographs presenting aspects of Eleanor Roosevelt's life at Hyde Park, Val-Kill, the White House, and the United Nations in the exhibition *Eleanor Roosevelt: First Person Singular*, at the National Museum of American History. The exhibition commemorated the centennial of Eleanor Roosevelt's birth. (Photograph courtesy of the White House)



The Program in Black American Culture presented colloquiums and concerts honoring Martin Luther King, Jr., and gospel composers Lucie Campbell and the Reverend C. A. Tindley. The Tindley tribute was presented in Philadelphia in April. During Black History Month, February 1983, the Program in Black American Culture also sponsored a concert and colloquium entitled "Black American Choral Song: The Evolution of the Spiritual." Four evening concert series were offered during the year: The Smithsonian String Quartet and the Smithsonian Chamber Players, the museum's resident ensembles, performed music from the baroque and romantic repertoires, while Treasures from the Collection and Piano in America featured guest artists and rare instruments from the museum's collection in programs devoted to major European and American composers. Information on concerts and public programs was distributed through the quarterly calendar "Events," which reached more than 10,000 individuals and organizations, including schools, libraries, and recreation and senior citizens groups.

The Education Office of the Department of Public Programs continued to bring the museum's exhibitions and collections alive for the public. With 200 docents, the Education Office conducted programs for more than seventy thousand museum visitors in this fiscal year. The staff developed new programs, including the Electricity Demonstration Center, funded by the Edison Electric Institute; the Pain Clinic Discovery Corner, a part of the *Pain and Its Relief* exhibition; and a tour for sixth, seventh, and eighth graders on eighteenth-century life. Visitor surveys, an evaluation system for docent presentations, and new self-guides to the Transportation Hall and the *Nation of Nations* exhibition were other accomplishments of the office.

The National Numismatic Collection received a new executive director in fiscal year 1984, Elvira Clain-Stefanelli. Cora Lee Gilliland was appointed associate curator. The year saw the rearrangement of collections after inventory, a review of the entire activity of the collection by the Office of Audits, and the continuation of the microphotography project, with more than 52,000 frames completed during the year. The entire numismatic exhibition, more than 6,700 objects, was dismantled, cleaned, and photographed. In January museum specialist Raymond Hebert delivered a lecture entitled "Rome in India" at the Inaugural Seminar of the Indian Institute in Numismatic Studies at Nashik, India. In July Cora Lee Gilliland participated in the First International Medallion Work-

shop at Pennsylvania State University. The collection acquired 1,714 objects this year, including early colonial paper money, a large number of dies used in restriking Byzantine and Roman coins, more than one hundred coins and medals produced by the U.S. Mint, including gold and silver commemorative coins for the 1984 Olympic Games.

James E. Bruns, formerly of the U.S. Postal Service, joined the staff of the National Philatelic Collection as a curator. The collection hosted the annual convention of the Confederate Stamp Alliance and produced a new five-panel exhibition depicting the postal operations of the Confederate States of America in conjunction with the convention. Philatelic acquisitions included a printing press used by the Confederate States of America to print stamps and currency, a pane of 1861 stamps from this press, a rural free delivery wagon used in the 1890s, a 1765 Benjamin Franklin postal rate chart, and one of the earliest known type-written letters to be sent through the mail.

The registrar of ten years, Virginia Beets, retired in November 1983 and was replaced by Martha Morris in January 1984. This fiscal year the registrar's office assumed management of collections inventory functions, security photography, Silver Hill storage operations, and the automated central catalogue, a product of last year's massive inventory project. The catalogue will help in maintaining, refining, and augmenting computer records for scholarly research and collections management. The office also coordinated major outgoing loans for the Cooper-Hewitt Museum, the Edinburgh Festival, and other exhibitions. To help museum staff acustom themselves to new collections management computer systems and the new automated central catalogue, the office also conducted internal seminars on collections management. Fiscal year 1984 began with an effort to preserve and update the inventory, and continuing efforts throughout the year were aimed at matching past registration and catalogue records with those produced during the inventory to create the most accurate possible master file, and integrating the new inventory into the everyday life of the museum.

The Afro-American Communities Project, which studies antebellum life among free blacks, acquired the records of the Allen Temple, also known as the African Methodist Episcopal Church, in Cincinnati, which date from the 1830s. The project has also begun to collect wills and inventories of property to research the question of occupation and status of the antebellum urban black

community. So far the project has collected seventy-five inventories from Boston and fifty wills from Cincinnati; the collection of documents from Philadelphia is under way. The director of the project, James O. Horton, presented five scholarly papers during the year, including "Beacon from the Hill: The Black Church and the Black Community," at the Second National Conference on Blacks in Boston held at Boston College, and "Links to Bondage: Northern Free Blacks and the Problem of Slavery," at the annual meeting of the Organization of American Historians held in Los Angeles.

The Archives Center, established in fiscal year 1983, collaborates with other museum units in acquiring, organizing, and preparing archival and documentary materials for research use. Evidently its reputation is spreading, because in fiscal year 1984 the center saw wide use and served visitors ranging from attorneys and collectors to a French volcanologist. Major projects of the year included the "Pepsi Generation" advertising campaign oral history project. Supported by a grant from the Pepsi-Cola Company, the project includes interviews with executives at Pepsi-Cola and advertising agencies and will collect relevant documents to complete a major in-depth study of this extremely successful advertising campaign. The center added fifty-two collections during the fiscal year, to bring its total of collections to 117. Notable acquisitions include documents and photographs from the Faris and Yamna Naff Arab-American Collection, the Walter Wilkinson collection of commercial art materials, and the scripts for the television show *M\*A\*S\*H*. Spencer Crew, Robert Harding, and John Fleckner of the center attended the annual meeting of the Society of American Archivists, where Fleckner, the museum's archivist, gave a paper entitled "The Administration of Archives: A Common Practice?" He also spoke on Third World archives at a Smith College conference on resources for the study of women's history and on native American archives in conjunction with the annual meeting of the American Library Association. Spencer Crew, historian at the center, gave a paper on black institutions at the Camden County Historical Society in New Jersey.

Surveys by the Division of Conservation of objects in divisional collections turned up more than 875 objects in need of immediate attention from a conservator or technician. A total of more than 1,250 objects were treated or given safer storage. The efforts of the Division of Conservation included special attention to photographic collections, including rehousing of the Eadweard Muy-

bridge glass plate positive collection. Conservators and technicians helped train museum staff in conservation. Deborah Hess Norris and Peter Krause gave a well attended lecture and workshop on conserving photographic materials, organized by conservator Dianne van der Reyden of the division and attended by NMAH staff and staff from other Smithsonian museums and area institutions. Paper lab and objects lab staff conducted short training sessions for exhibits production and curatorial staff on topics such as safe storage housing for paper, use of ultrasonic Mylar welder, and safe cleaning techniques. The division spent many hours examining and treating objects for exhibitions and loans. The staff answered 300 requests on conservation from the public and conducted tours of its facilities for more than six hundred people. Scott Odell, head conservator, was a panelist and speaker for the "Pest Control" session for the Conservation Lecture Series of the Office of Museum Programs, and Nikki Horton, conservator, delivered papers entitled "Supports and Mounts for Leather Objects," at the Recent Developments in Leather Conservation meeting; "Accession Numbering" at a meeting of the Association of Museum Specialists, Technicians, and Aides; and "Museum Pest Control" at the Conservation Lecture Series of the Office of Museum Programs.

### *National Portrait Gallery*

The exhibition year at the National Portrait Gallery (NPG) was highlighted by the monumental *Masterpieces from Versailles: Three Centuries of French Portraiture*, made possible through the cooperation of the French government, the sponsorship of Guerlain, Inc., and by a unique opportunity afforded by the restoration of Versailles. The Versailles exhibition signalled the recognition by the National Portrait Gallery of its affinity with sister institutions abroad and its success suggested a series of international portrait exhibitions in the future.

Among other noteworthy exhibitions in a busy year were the groundbreaking *Robert Cornelius: Portraits from the Dawn of Photography*, which offered an unprecedented scientific (as well as aesthetic) study of the earliest daguerreotypes produced in the

United States; *O Write My Name*, the presentation of Carl Van Vechten's splendid photographic gallery of Black Americans, produced by the Eakins Press; and *Adventurous Pursuits: Americans and the China Trade 1784-1844*, which marked the bicentennial of the inauguration of American commerce with the Orient. Featured as well were a collection of *Time* cover portraits of the Presidency, a small exhibition reviewing the life and work of the writer Booth Tarkington, and a lively display of caricatures of musicians, underscoring a new thrust in NPG collecting. The Portrait Gallery strengthened its ties to other museums through the presentation of *Artists by Themselves*, an exhibition mounted by the National Academy of Design from its own collection; *Arnold Genthe: The Celebrity Portraits*, organized by the Library of Congress; and *Erastus Salisbury Field*, a celebration of a major folk artist assembled by the Springfield Museum of Fine Arts and presented jointly with the National Museum of American Art.

Noteworthy among the publications produced to accompany these exhibitions was *Adventurous Pursuits: Americans and the China Trade 1784-1844*, by Margaret C. S. Christman, which won awards from the American Association of Museums and the Art Directors Club of Metropolitan Washington. The National Portrait Gallery's quarterly *Calendar of Events* also won an award from the AAM. Other publications included *The Selected Papers of Charles Willson Peale and His Family, vol. 1: Charles Willson Peale: Artist in Revolutionary America, 1735-1791*, edited by Lillian B. Miller and the Peale Papers staff at NPG, the first of a planned eight-volume series published by Yale University Press; and *American Portrait Prints: Proceedings of the Tenth Annual American Print Conference*, which contains lectures presented at the National Portrait Gallery in May 1979, published by the University Press of Virginia, supported by a grant from the Barra Foundation.

The Morris and Gwendolyn Cafritz Foundation provided a matching grant (\$650,000) to purchase the NPG's most significant acquisition in a year of exceptional acquisitions: the portrait of Mary Cassatt painted by Edgar Degas; the remainder of the purchase was made through the Regents' Major Acquisition Fund. Other major purchases included a rare portrait of the poet Joel Baarlow by Robert Fulton, who, like Samuel F. B. Morse, was an artist as well as inventor and scientist; a painting of the noted critic Sadakichi Hartmann by the Michigan artist John S. Coppin; a striking portrait of composer Virgil Thomson by the noted



This was the scene on a typical day during the exhibition *Masterpieces from Versailles: Three Centuries of French Portraiture* at the National Portrait Gallery.

A portrait of composer Virgil Thomson by Alice Neel was one of the National Portrait Gallery's major purchases this year.



painter Alice Neel; a rare 1860 lithograph of Abraham Lincoln by Joseph E. Baker; a collection of rare portrait prints of Confederate political and military figures; a photograph of the American publisher James Thomas Fields by the noted British photographer Julia Margaret Cameron; Paul Strand's portrait photo of Georgia O'Keeffe; a scarce and splendid Man Ray photograph of Peggy Guggenheim; photographs of Sherwood Anderson, George Washington Carver, W. C. Handy, and Frances Benjamin Johnson, as well as a portfolio of informal portrait photographs by the late Garry Winogrand.

Gifts to the Portrait Gallery included portraits of the inventor and businessman King C. Gillette; naturalist William T. Hornaday; civil rights activist Rosa Parks; economists Thorstein Veblen and Milton Friedman; and a substantial group of caricatures by Aline Fruhauf of noted Americans in the fields of music, the arts, and fashion.

Innovation, outreach, and partnerships in public programming have been the outstanding characteristics of NPG Education Department activities in 1984, a year in which the department served more than 40,000 individuals. In support of the exhibition *Masterpieces from Versailles*, NPG docents mastered a large body of new material to serve both an adult public and, thanks to the support of the *Washington Post*, a school audience numbering 2,500. The Portraits in Motion series continued to show capacity for growth: three new sub-series, Portraits in Motion Showcase, Portraits in American Song, and Portraits in Motion Studio Theater, found responsive audiences for figures as diverse as Calamity Jane and Clarence Darrow, Zelda Fitzgerald, and Ernie Pyle, and music ranging from that of Irving Berlin to art songs to ragtime to folk songs.

It was a year of unprecedented collaboration for the department: the Portraits in Motion Showcase was offered in association with the Resident Associate Program; "The Provincetown Plays" were one of three performance cosponsorships undertaken with the National Museum of American Art (NMAA), one of which also had the participation of the National Museum of American History. Cooperation was especially in evidence in the public programming for the joint NPG-NMAA exhibition *Erastus Salisbury Field, 1805-1900*. A broad range of activities were presented by the two museums: "Connecticut Valley Lives" included two Portraits in Motion programs, "A Charles Ives Fourth of July" and "White Ashes"; a one-woman drama about Mrs. Stowe; special lectures



were presented in the Great Hall; and there was an array of Lunchtime Lectures, films, and tours.

NPG has also provided more services to its audiences who are unable to visit by adding to the repertoire of adult and, especially, senior adult outreach programs "A Cole Porter Jubilee." Similarly, the number of school programs, most of which combine outreach and in-gallery phases, has been expanded as well. Finally, the department continued to play a prominent role in the museum education community, particularly through its involvement in *Roundtable Reports: The Journal of Museum Education*, its participation in the publication of *Museum Education Anthology: Perspectives on Informal Learning*, and active engagement in professional groups, meetings, panels, and workshops.

The Gallery's "self-portrait" evenings, which resumed last year, continued with public interviews of the journalist William L. Shirer, who spoke of his career as witness to history and his first-hand experience of Gandhi and of Hitler; and of Edward L. Bernays, who recalled the origins of the profession of public relations, which he launched. These interviews by NPG's chief historian, Marc Pachter, were videotaped. An earlier "self-portrait" evening, with the theatrical director and producer George Abbott, has been edited into a finished television program with the support of funds provided by the Educational Outreach Fund, administered by the Assistant Secretary for Public Service. This will serve as a pilot for a projected series of telecasts.

### *Office of American Studies*

The Office of American Studies (OAMERS) continued its program in graduate education throughout the year. The 1983 fall semester seminar in "Material Aspects of American Civilization" had as its theme "Material Culture of the Future—1984 and Beyond," and was taught by the director of the program and Professor Bernard Mergen of the George Washington University.

Other seminars during the academic year 1983–1984 included "The Decorative Arts in America," taught by Barbara G. Carson, and "The Gilded Age: 1865–1900," taught by Lillian B. Miller. Individual graduate students continued to pursue specialized research under the supervision of the director of the Office of American Studies.



This group of objects from the exhibition *Treasures from the Smithsonian Institution*, representing the great diversity within the Smithsonian as well as in the American way of life, drew much attention in Edinburgh. Jimmy Durante's hat, sheet music for "The White Cliffs of Dover," featuring a photo of Bing Crosby, a baseball autographed by Babe Ruth, a bat used by Walter "Buck" Leonard, and a Tiffany lamp (left to right) provided a contrasting mixture of objects.

## MUSEUM PROGRAMS

WILLIAM N. RICHARDS,  
ACTING ASSISTANT SECRETARY FOR MUSEUM PROGRAMS

### *Conservation Analytical Laboratory*

The event which, more than any other, shaped fiscal year 1984 for the Conservation Analytical Laboratory (CAL) was the move to new quarters at the Museum Support Center, marking the beginning of a period of changes and transition.

The new laboratories had to be adapted to meet the requirements of the specialized staff, while at the same time CAL had started a large-scale recruitment program for new staff members. These activities were completed successfully under the coordination of acting director Alan W. Postlethwaite, who stayed on as deputy director when Lambertus van Zelst joined CAL as director at the end of this fiscal year.

Late last year senior furniture conservator Walter Angst retired and objects conservators Nikki Horton and Kory Berrett resigned to accept appointments elsewhere. This year three new senior conservators joined CAL: furniture conservator Marc Williams, objects conservator Carol Grissom, and textile conservator Mary Ballard. Furniture conservator Don Williams and paper conservator Dianne van der Reyden are joining CAL this fall; recruitment is under way for two more objects conservators. Early this year Ronald Bishop became manager of the Smithsonian Archaeometric Research Collections and Records (SARCAR). Edward V. Sayre was appointed senior research scientist.

## CONSERVATION

A number of treatments took place before the move. Walter Angst completed work on an early American cane-seated bentwood chair, and examined and cleaned the Smithsonian Mace. He also completed a treatise on the Mace and its history, which will be published with the aid of a grant from the James Smithson Society. Kory Berrett finished work on a number of bronze objects and repaired the glass dissociator tube of the first hydrogen maser, smashed into thirty-three pieces. Ron Cunningham finished treatment of two oil paintings and continued with work on three others. Mary Lou Garbin completed work on an early English-style American saddle. This led her to a study of the literature, which has resulted in her presentation of a bibliography on leather conservation treatment during a workshop on this subject. The bibliography will be part of the published proceedings.

After the move to the Museum Support Center, the conservators organized their laboratories and awaited final installation of equipment and furniture. During this period they cooperated with conservators in other Smithsonian laboratories and spent time at the various museums in an effort to establish conservation needs and priorities.

Carol Grissom spent three days a week at the Anthropology Conservation Laboratory of National Museum of Natural History, substituting for their absent conservation coordinator. She reviewed objects requested for loan by more than fifteen institutions, specified packing, shipping, and display conditions, and wrote about 200 condition reports. She also performed treatments on seventeen objects for the exhibition *The Tibetan Yak in Arts and Craft* at the Renwick Gallery, and on two bronzes from the Sackler Collection for the *Treasures from the Smithsonian Institution* exhibition.

Ron Cunningham assisted the Freer Gallery of Art at its Technical Laboratory with a minor treatment of an oil painting on canvas by James McNeill Whistler, and with extensive conservation work on sixteen wooden staircase panels painted by the same artist.

Tim Vitale worked at the Division of Conservation at the National Museum of American History to help complete the treatments of two architectural elevations, one architectural drawing, and a color lithograph, in preparation for the exhibition commemorating the construction of the Brooklyn Bridge.

At the Renwick Gallery, Marc Williams examined and proposed treatments for a boule cabinet and for two sideboards on loan



Some of the 127 crates used to transport the *Treasures from the Smithsonian Institution* exhibition to Edinburgh await unpacking in the main gallery of the Royal Scottish Museum. In the foreground, the lunar buggy and buckboard wagon are draped in plastic.

from the Metropolitan Museum of Art; he also examined a pair of Chinese sofas at the National Museum of American Art. Treatment of these objects will take place during the next year.

Also during this period, the statue of Joseph Henry in front of the Castle was cleaned and waxed by a contract conservator, as part of a program to protect it from environmental hazards.

As the CAL laboratories were completed, objects started to come in again for conservation treatment. Tim Vitale treated two prints and two drawings for the National Portrait Gallery. Ron Cunningham treated a canvas wall panel from the studio of Christian Herter for the Smithsonian Castle Collection, two murals and a painted wooden tavern sign. Marc Williams treated several objects for the National Air and Space Museum, among them the propeller of the Wright Brothers' Flyer. With the exception of the textile conservation laboratory, which is presently being installed under the supervision of Mary Ballard, CAL conservation laboratories at the Support Center are now all operational.

CAL assisted the museums in pest control, keeping the fumigation chamber at the American History Building operational. Nineteen loads for seven bureaus were fumigated. Evaluation of potential fumigation activities, with a critical review by CAL conservation scientists of various fumigants, continues.

CAL continued to provide calibrated temperature- and humidity-monitoring instruments and review service to bureaus that request this. At present, eighty-two hygrothermographs are located in twelve bureaus.

During this year CAL's conservators presented a number of contributions at professional meetings. Tim Vitale edited the preliminary papers of the Paper Conservation Catalogue, presented at the annual meeting of the American Institute for Conservation (AIC), for which he contributed a chapter on "Drying and Flattening." He also gave a presentation in "Operating Parameters and Use of Large and Small Suction Tables" at the meeting of the Conservation Committee of the International Council of Museums (ICOM) held in Copenhagen, Denmark, in September 1984. Mary Ballard presented a paper on "Risk Assessment and the Use of Fumigants" at the Sixth International Biodeterioration Conference in Washington, D.C., on "Ethylene Oxide Fumigation: Risk Assessment and Results" for the Society of American Archivists, and another on "Mothproofing Museum Textiles" at the ICOM Conservation Committee meeting.

The essential simple technical facilities of the conservation science group were operational again within a few weeks after the move. More complicated equipment and facilities needed somewhat more time to set up; the only service not yet operational at this writing is X-radiography, for which additional shielding, needed for adequate radiation protection, is being installed.

With the installation of a gas chromatograph-mass spectrometer, in addition to the installed gas chromatograph (the latter given to CAL by the Department of Anthropology, National Museum of Natural History, together with an amino acid analyzer and other apparatus), and the already present infrared spectrometer, CAL now has assembled a quite powerful facility for the analysis of organic materials, such as resins, adhesives, paint media, archeological food residues, etc.

During the past year a large number of requests for analyses and technical assistance were carried out. Thirty identifications of such materials as pigments, corrosion products, varnishes, and corrosion inhibitors were completed. One of these investigations, a study of the changes that take place with time in a varnish often used to protect outdoor bronze sculpture against environmental hazards, resulted in a presentation by David Erhardt at the ICOM Conservation Committee meeting.

Fifteen test studies were done on modern materials used around museum objects for various purposes. Examples included the analysis of air in museum buildings for the concentration of amines, which are introduced via the air conditioning system (they are added to the steam as corrosion inhibitors for the pipes, but they may have undesirable effects on objects) and the evaluation of the treatment of concrete floors to improve their properties with regard to objects storage. Environmental studies addressed control problems in both micro and macro climates. The design of a cooled exhibition case in which to display General George Washington's commission as Commander in Chief of the Continental Army, under controlled relative humidity, was the subject of a presentation by Tim Padfield at the ICOM Conservation Committee meeting. The movements of salts and water in the walls of buildings, especially during the winter when the interiors are humidified, are the subject of a study for which special monitors are being designed, which will be placed inside walls. Buildings to be monitored in this way will include the Museum Support Center and the Renwick Gallery.

Two interns, John Frieman and Deborah Delauney, have worked with Tim Padfield on this project.

David von Endt helped organize and lectured at the AIC workshop, "Protein Chemistry for Conservation"; he also contributed four chapters to the course book that he co-edited. At the September meeting of the International Institute for Conservation (IIC) he presented a poster on the identification of a plant mucilage used as an adhesive by North American Indians. At the Sixth International Biodeterioration Conference he gave a presentation on the "Biodeterioration of Proteinaceous Materials in Museums." Tim Padfield lectured in February on "Indoor Air Pollution" at the Center for Building Technology workshop on "Air Quality Criteria for the Storage of Paperbased Archival Records."

#### ARCHAEOOMETRY

Activities in the archaeometry program during the past year included cooperative programs involving staff, fellows, and research associates in a wide scope of subjects such as archeology of the Arctic, Mediterranean, Meso American, and Near Eastern areas; and technical studies of American and European paintings. A wide variety of analytical techniques were used in these projects, including neutron activation analysis, plasma optical emission spectroscopy, lead isotope analysis, petrography, neutron activated autoradiography, and X-radiography.

The lead isotope analysis program for provenience studies of archeological artifacts developed into a joint program with the National Bureau of Standards (NBS) and the Corning Museum of Glass. This program was originally started when lead isotope analysis was chosen as a tool in the Freer Gallery of Art's technical study of bronzes from the Sackler Collection, but now has grown into a full-scale cooperative program that supports the analysis of samples for a number of archeological studies. Approximately 200 samples from thirteen separate projects were analyzed during this year by research chemist Emile Deal. The neutron activation analysis group at NBS, under the coordination of M. James Blackman, characterized about 500 samples from six different archeological projects, including work by Materials Analysis fellows Albert Jornet, Emlen Myers, Rita Wright, and Christopher Nagle. This CAL facility bought a hyper-pure germanium detector, a fifty-position sample changer, and new software for the VAX 750 computer around which the gamma ray spectrometry systems at NBS are centered.



Ronald Bishop developed a data storage/retrieval system for SARCAR, using the VAX 750 computer at the Support Center. A statistical software package interfaces with the databank. In addition to data resulting from the work of fellows and staff, those of about 20,000 analyses done in the archaeometry program at Brookhaven National Laboratory have now been entered in the data bank. Recently, the uniquely important collection of samples and data of the eminent historical metallurgist, the late Earle Caley, was donated to SARCAR. Ronald Bishop also continues his research into archeological problems relating to the Maya civilization, making use of the SARCAR data-handling facility.

Yu-tarng Cheng continued work on the development of a facility at the NBS research reactor for neutron-induced autoradiography of paintings. The work group for this project, which also includes Jacqueline S. Olin, Roland Cunningham, and research associate Susan Hobbs, continued the study of paintings by American artist Thomas W. Dewing with two of his works, *Duet* and *Nude*. In cooperation with the Metropolitan Museum of Art, that museum's earlier project on the study of the techniques used by Rembrandt, originally done at Brookhaven National Laboratory, was continued with the autoradiography of two paintings by Rembrandt: *Man in an Archway* and *Portrait of a Lady*.

As a visiting scientist in CAL's archaeometry department, Dr. Ian Brindle of Brock University, Ontario, Canada, worked with the staff on the development of procedures for the provenience study of North American native copper artifacts, using direct current plasma optical emission spectroscopy. Dr. Bruno Frohlich, under contract with CAL, carried out an electromagnetic prospecting project in Bahrain, to identify and characterize archeological sites on the Arabian peninsula. Two new postdoctoral fellows in Materials Analysis, Marilyn Beaudry and Julian Henderson, were appointed.

CAL Archaeometry Department staff produced a number of lectures and contributions to professional meetings. Four contributions were presented by Jacqueline Olin, Marino Maggetti, Albert Jornet, and James Blackman at the Williamsburg Conference of the Society for Historical Archaeology. Albert Jornet represented the group with "A Study of Ceramic from the Paterna-Manises Area" at the Pittsburgh meeting of the American Ceramic Society and with "Study of Maiolica from Three Production Areas of Spain" at the International Archaeometry Symposium in Washington, D.C. Also at this meeting, Emile Deal presented "Determining the Provenance of Works of Art and Comparative Samples by Lead

Isotope Ratio Analysis," and James Blackman offered "The Use of Interlaboratory Data Sets in Provenience Studies."

Ronald Bishop presented "Compositional Attribution of Non-Provenienced Maya Polychrome Vessels" at the international seminar "Application of Science in Examination of Works of Art" at the Museum of Fine Arts, Boston, where Yu-tarng Cheng showed a poster describing the proposed facility for autoradiography at NBS. Rita Wright presented "Standardization as Evidence for Craft Specialization, a Case Study," at the Chicago meeting of the American Anthropological Association. Ronald Bishop presented "SAR-CAR, A New Archaeometrical Resource" at the ICOM Conservation Committee meeting.

#### *INFORMATION AND TEACHING*

Staff members of the Conservation Analytical Laboratory continued to lecture and teach, both inside and outside the Smithsonian Institution. Ronald Bishop lectured at the University of Costa Rica on "Activacion de Neutrones de la Ceramica y Jade de Costa Rica"; and on "Neutron Activation and the Modeling of Ceramic Compositional Data" at the Center for Materials Research in Archaeology and Ethnology (CMRAE) at the Massachusetts Institute of Technology. Emile Deal lectured on the archaeometrical use of lead isotope analysis at the University of the District of Columbia, and presented a poster on the subject for the Association for the Development and Advancement of Black Scientists and Engineers. Martha Goodway lectured at a National Park Service workshop on bronze statuary; on "Forensic Aspects of Art Forgery" for the North Eastern Association of Forensic Scientists; and on "Metallurgy in the Museum" for the American Society for Metals, Washington chapter. Eleanor McMillan taught and lectured at four different workshops organized by the Office of Museum Programs; she also lectured on "Exhibit Design and Conservation" for the American Association of Museums and for the Northeast Museums Conference; and on "Preventive Maintenance" for the U.S. Army Curatorial Museum Training Course; on "Conservation at the Smithsonian" at Gonzaga University in Spokane; and on "Treasures from the Smithsonian Institution, a Closer Look" for the Cincinnati Historical Society. Jacqueline Olin presented lectures on the definition and goals of archaeometry at the University of Maryland and at the State University of New Jersey at Rutgers. Tim Vitale spoke on "The Examination and Treatment of a Variety of Works on Paper from the National Air and Space

Museum Collection" at the Space Science and Exploration Department. Rita Wright lectured on "Why and How Archaeologists Study Ceramic Technology" at the Winterthur Art Conservation Program; together with Emlen Myers she presented an Archaeometry/Anthropology Lunchtime Talk on "Patterns of Technological Variation and Change: Examples from Third Millennium Pakistan and Contemporary Morocco."

The information program for the general public handled 596 requests, referring the questions to the appropriate CAL conservators. Marjorie Cleveland of the professional information service performed more than a hundred literature searches for conservators and researchers.

Tim Vitale coordinated the course "Traditional Japanese Mounting Techniques for Application to Western Conservation Treatments," taught by Japanese expert Katsuhiko Masuda at CAL. This valuable course, originally presented at the International Conservation Center at Rome, had been available to only a few American conservators; here twelve participated.

The twenty-fourth International Archaeometry Symposium was organized by Jacqueline Olin and James Blackman and held in the Baird Auditorium May 14-18. More than two hundred participants from sixteen countries attended this meeting, which included sessions on Stable Isotope Measurement in Archaeology, Ancient Technology, Prospection, Mathematical Methods, Provenience Studies, and Dating. The proceedings of the meeting will be published in the Smithsonian Press series *Contributions to Anthropology*.

In the series of SI-NBS seminars, Helmut Schweppe of BASF Aktiengesellschaft in West Germany presented a lecture on the "Identification of Dyes in Historical Textiles." He also conducted a workshop for Smithsonian conservators at CAL. Other lectures in this series were given by Emile Deal on "The Use of Lead Isotope Ratios for the Determination of the Provenience of Ancient Objects" and by Ronald Bishop on "The Science and Art of Classic Maya Pictorial Ceramics."

Preparation continued for the conservation training project, which is expected to start in September 1985.

### *National Museum Act Programs*

The National Museum Act (NMA), established by Congress in 1966, responded to continuing needs in the museum field through grants

for researching museum-related problems, disseminating technical information, and training mid-career or beginning professionals. Conservation issues were again emphasized in each of the grant categories that were offered in 1984. The Advisory Council reviewed 228 proposals requesting over \$4 million, the largest group of applications ever received. Sixty-two awards were made, totaling \$686,000; of that number, 70 percent concerned training and research in conservation.

Training grants for beginning professionals were made to academic institutions with museum-related courses, to museums with established internship programs, and to individuals pursuing graduate or advanced training in conservation both here and abroad. Graduate training in academic institutions included support for the first American program in architectural conservation. Internship programs, which enable individuals to gain valuable hands-on experience that cannot be acquired in an academic setting, involved art and history museums as well as a major planetarium in the Midwest, botanical gardens in New York and Missouri, and three zoos. Grants for individuals covered various areas of conservation, such as paintings, textiles, works on paper, and ethnographic materials.

Seminars supported by NMA are designed primarily to reach professionals who are already employed by museums and who can profit from state-of-the-art information on specialized topics. In 1984, awards were made to benefit individuals in history, science, and art museums. The seminar for history museum professionals at Colonial Williamsburg, jointly sponsored by the American Association of Museums, the American Association for State and Local History, and the National Trust for Historic Preservation, has successfully addressed changing needs for twenty-five consecutive years. Special workshops for professionals in science museums involved model outreach and teacher-training programs that are relevant to the important educational role of museums. Several seminars dealt with conservation topics, such as the care of paintings, paper, and photographic collections or the use of microscopes in determining the treatment of objects. A series of regional seminars on management for staff members of museums exhibiting African American materials was funded, as well as a three-day workshop on issues that affect Native American museums.

Most of the research grants made in 1984 involved technical problems in conservation. One study will investigate the effectiveness of certain pesticides both on insects and museum specimens

and another, methods of consolidating deteriorated stone. NMA funds will partially support the development of a test that can be used by museums to determine safe storage enclosures for historic photographs and a project to identify fungi that endanger artistic and historic works. An award was made to prepare a manual for museum professionals on the latest techniques of preserving daguerrotypes; this information is the result of previous NMA grants on this topic.

A special category of grants concerns technical services to the museum field that do not involve training or research. In 1984 a museum-related organization in New York was awarded funds to produce a series of data sheets on health hazards in museum conservation, and a zoological garden in the Midwest received a grant to improve an inventory system that provides information on captive animals, many of which are endangered species, to zoos in the United States and abroad. The National Museum Act continued to support important regional museum associations around the country, enabling them to strengthen the programs of their annual meetings, and to sustain the consultant program for history museums that has been successfully administered by the American Association for State and Local History since 1972.

### *Office of Exhibits Central*

This year the Office of Exhibits Central (oec) worked with almost every Smithsonian museum on one extraordinary exhibition: *Treasures from the Smithsonian Institution*, which opened on August 12, 1984, at the Royal Scottish Museum in conjunction with the 1984 Edinburgh Festival. It will close and be returned to the Smithsonian in early November. Conceived, designed, written and edited, produced, crated, shipped, and installed within six months, *Treasures from the Smithsonian Institution* called on all of the talents and in-depth experience of the oec. This, however, was but one of more than two hundred projects worked on by the oec this year.

In June oec administrative, editorial, and typesetting offices were relocated to the Smithsonian Institution Service Center (sisc) at 1111 North Capitol Street, because of the roofing and restoration work in the Arts and Industries Building. Substantial rearrangements were necessary to incorporate staff and equipment into the

existing OEC facilities at SISC but, for the first time since being established, the entire OEC staff is now located in one building. In September the OEC Model Shop began providing limited freeze-dry services, which had been discontinued when the lab was closed in the Natural History Building a year earlier. In October a complete house cleaning is scheduled to upgrade all OEC offices and shops.

The two hundred or so separate projects that OEC completes each year include many exhibit-related tasks that are performed during the inherent down-time of all exhibition programs. These tasks utilize the same equipment and talents as exhibition work, hence the term exhibit-related projects. This year, for instance, nameplates used at Regents meetings were re-done, which involved twenty work-hours and less than \$75 in material costs. A new, all-weather label was produced and installed for the Downing Urn located on the Mall lawn of the Castle building. This required thirty work-hours and \$36.08 in material costs. The OEC's computerized accounting system records all projects and the requesting Smithsonian office reimburses all material costs. Such projects are routinely accepted on a time-available basis; however, more than half of the yearly projects produced by the OEC are more comprehensive and are scheduled on a deadline basis.

Thirty new exhibitions were produced for the Smithsonian Institution Traveling Exhibition Service (SITES), three others required updating changes, and fourteen were refurbished for extended tour. Two special temporary exhibitions were installed in the Castle lounge, and the OEC again provided graphics for the Festival of American Folklife. The Information Carts and summer information pylons for the Mall were refurbished by the OEC, and portrait mannikin heads were cast of astronauts Sally Ride and Guion Bluford for the National Air and Space Museum. The OEC Exhibits Editors Office wrote, edited, designed, and supervised the printing of thirty foreign and forty domestic tour brochures for the Associates Travel Program. This year the brochure for China tours was developed as a folder describing each of the twelve tours offered. This very successful format will now be used for other multiple tour offerings.

Model-makers David Paper, James Reuter, and Benjamin Snouffer received cash awards this year for the construction—which required considerable research and interpretation of very limited documentation—of a nine-foot-high model of Russian constructivist Vladimir Tatlin's *Monument to the Third International* for the Hirshhorn Museum exhibition *Dreams and Nightmares*. The

model, now in the museum's collections, is a milestone in the development and building of scale models of visionary art/architecture. For the same exhibition Karen Fort, chief exhibits editor, wrote and edited a complex didactic script for the labels—an unusual approach in most art exhibitions. By all standards the Exhibits Editors Office had an active and very involved year. Karen Fort also wrote and edited labels for the *Art of the Cameroon* exhibition, and editor Rosemary Regan wrote and edited the text and coordinated Spanish translations for the bilingual exhibition *Age of Gold*; both scripts were written from catalogue copy for these SITES exhibitions. Michael Fruitman, an OEC editor, left the Smithsonian for a writing position at the Government Accounting Office. Fruitman's services of top-rate exhibit-label writing and editing over a period of nine years are much appreciated. He was replaced by editorial assistant Diana Cohen.

The *Art of Cameroon* exhibition script involved interpreting as well as identifying 125 objects; other OEC participation on this comprehensive exhibition was equally complex. John Widener, assistant chief, OEC, supervised the construction of the cases on contract. The Model Shop designed and produced brackets or mounting devices for each object, ranging from life-size sculpted wood figures and masks to extremely delicate leather and beadwork jewelry. The Graphic Production Unit silk-screened the exhibition labels on formica, plastic, and fabric surfaces; and the Fabrication Unit built custom shipping crates for all of the objects and all of the exhibition cases and fixtures. The exhibition opened in the Evans Gallery, National Museum of Natural History, and will travel for approximately two years in the United States.

No exhibition this year, or since OEC was established in 1972, better illustrates the experienced teamwork of this office than does *Treasures from the Smithsonian Institution*. Designed, written and edited, produced, shipped to Edinburgh, and installed within six months' time, this major exhibition—the Smithsonian's first participation in the Edinburgh Festival—has been an outstanding success, as well as the largest, most comprehensive exhibition ever traveled by the Smithsonian Institution.

More than 260 objects, representing almost every Smithsonian unit, were assembled by Donald McClelland, SITES coordinator and curator/organizer for the exhibition. OEC director Jim Mahoney designed the exhibition, produced the drawings and specifications for contracting the construction of the "set" by the London firm of Wedgehand Ltd., and supervised the complete installation in the

Royal Scottish Museum. Karen Fort wrote and edited the exhibition labels from information provided by sources throughout the Smithsonian. She also supervised the phototypesetting of the more than three hundred labels by oec specialist Elizabeth Wilform. Mary Dillon, as assistant designer, was the ultimate "girl Friday," coordinating design information and detailing within the oec and between the Smithsonian and the Royal Scottish Museum. Model Shop supervisor Walter Sorrell oversaw the making of brackets and mounting devices for the objects and the design and construction of customized interiors for the shipping crates. Fabrication supervisor Kenneth Clevinger measured and coordinated the construction of the shipping crates—127 in all—and the fabrication of pedestals and graphic elements. James Speight, Graphic Production supervisor, and his staff silk-screened all of the labels. And John Widener balanced and juggled the scheduling of all of this, as well as oec's other projects, through the shops.

Mary Jane Clark, sites registrar, coordinated the documentation, packing, shipping, and unpacking at the Royal Scottish Museum. She also served as courier on the first of three U.S. Air Force flights that transported the exhibition to Edinburgh and worked through the entire installation. The oec's David Paper and James Reuter worked on every phase of the installation; Mary Dillon served as a courier and worked through the installation; and Christopher Addison, of the National Museum of American Art, Barbara Coffee, of the National Museum of American History, and sites staffers Eileen Rose and Janet Freund also participated as members of the installation team. It was an exciting and exhausting experience. On the day after the opening ceremonies, Jim Mahoney, Mary Jane Clark, and the Royal Scottish Museum staff discussed plans for dismantling the exhibition and taking the objects home to the Smithsonian Institution.

### *Office of Horticulture*

Fiscal year 1984 has been extremely productive throughout the units of the Office of Horticulture. Our educational research and outreach projects have expanded dramatically. Requests from within the Smithsonian Institution as well as from other museums, botanical organizations, educational institutions, and the general



public for assistance with horticultural research, publications, seminars, and exhibitions have been fulfilled without additional personnel. A major factor in this accomplishment has been the excellent work contributed by our supporting staff of volunteers and interns.

Some of the specific projects included: the removal and transplanting of the plantings on the east end of the National Air and Space Museum; the closing of the award-winning American Garden at the IV International Horticultural Exhibition (IGA 83) in Munich, West Germany; the inventory of the Burpee Collection of rare seed catalogues; the acquisition of many labeled antique garden furnishings for the Enid A. Haupt Garden in the Quadrangle; and the relandscaping of the courtyards at the National Museum of African Art and at the American Art and Portrait Gallery Building.

The office provided support for 394 Special Events during the year—a 33 percent increase over fiscal year 1983. Of those, the following events required special attention: the Regents Dinners, Doubleday Dinners and Lectures, Musical Weekend, Renwick Waltz for the Contributing Membership, Diplomatic Dinner, Yale Alumni Dinner, the 20th Anniversary Dinner in honor of S. Dillon Ripley, the Whistler Exhibition, and the “Smithsonian Treasures” program.

The office assisted the Women’s Committee of the Smithsonian Associates with their Annual Christmas Ball, held on December 9, 1983, by transforming the rotunda of the National Museum of Natural History (NMNH) into a “Dickens Christmas.” More than 160 poinsettias, eleven cut trees, twelve garlands, and nine “kissing balls” captured the holiday spirit. Village scenes were fabricated by the Office of Exhibits Central with the assistance of Warren Abbott, an Office of Horticulture gardener and artist.

The seventh annual *Trees of Christmas* exhibition was presented from December 15, 1983, through January 2, 1984, in conjunction with the National Museum of American History (NMAH). Dixie Rettig, one of our volunteers, assisted Lauranne C. Nash, chief of Education Division, throughout the year with her coordination of this exhibit. Of the twelve trees presented, the following nine were new: “State Birds and Flowers” from Judy Ford Hogan and Mary I. Llewellyn; “Muslin and Lace” from Virginia C. Truslow; “Nutcracker Suite” from the Washington, D.C., Chapter, Embroiderers’ Guild of America, Inc.; “Crocheted Snowflakes” from Helen Haywood, Dorothy Scimshaw, and Priscilla Sparks;

"Folk Art Tree" from the Nation's Capital Chapter of the National Society of Toile and Decorative Painters, Inc.; "Red, White, and Blue" from Sunny O'Neil; "Scandinavia" from the Scandinavian Council of the Washington, D.C., area; "Toile and Decorative Painting" from the National Society of Toile and Decorative Painters, Inc.; and the "American Crafters' Tree" from American crafters. The following three trees were chosen from previous exhibitions: "Germany" from the Association of German-American Societies of Greater Washington, D.C.; "Nature's Bounty" from four generations of the Cronin family: Blanche Williar, Jane Cronin, Donna Cronin Fay, Teresa and Michael Fay; and the "Legend of the Spider" (previously named the tree of "Ukraine") from Helen Gunderson, Maureen Coleman, Mary G. Pister, and Dixie Rettig. All ornaments from the new trees were donated to the Office of Horticulture for future *Trees of Christmas* exhibitions. Mike Carrigan, exhibits designer for NMAH, borrowed contemporary wooden sculptures by William Accorsi, which were displayed with the trees. On December 14 the office sponsored a reception honoring the hundreds of volunteers who worked on the exhibition.

On March 30, 1984, the Office of Horticulture transformed the Renwick Gallery into a spring festival of flowers for the Annual Contributing Membership Waltz. Two magnificent antique urns from the William Adams foundry and one large rusticated tree trunk urn bearing the mark of the Miller Iron Company were restored for this event. The Greenhouse-Nursery Division forced spring bulbs, cut forsythia, and other spring flowers to create spectacular arrangements in these urns, which have been acquired for the Quadrangle Garden through the generosity of Mrs. Enid A. Haupt. Several hundred tubs of cymbidium orchids as well as other specimen plants from the permanent collections of the office were used to create this spring floral theme.

In late May-early June, floral decorations were provided for "Smithsonian Treasures," sponsored by the Smithsonian National Associate Travel Program, to enhance the setting at each program site. Potted plants and flower arrangements from Office of Horticulture collections decorated the many events held during the American Association of Museums Conference (June 10-14).

The Plant and Accessioning Records System was completely overhauled during the year. August A. Dietz IV, Greenhouse-Nursery manager, worked with the director of the office on a three-month detail to review and rewrite the accessioning policies



James R. Buckler, director of the Office of Horticulture, and Christian Hohenlohe, former Treasurer of the Smithsonian, view the Smithsonian Institution American Garden at the IV International Horticulture Exhibition in Munich, West Germany, from the pavilion, which was reproduced from a nineteenth-century summerhouse located at the Soldiers' and Airmen's Home in Washington, D.C.

for our collections. In 1983 the office began reviewing all landscape plans of Smithsonian properties in order to accession all permanent plant collections accurately. This mapping process has been completed and brass labels have been made for the permanent trees, shrubs, and groundcover beds. Maureen Coleman, landscape designer, was responsible for coordinating this project. The horticultural records assistant, assigned to the Greenhouse-Nursery Division in March 1984, entered the data gathered during the mapping phase into the computer.

The Office of Horticulture Library, established as a full Branch Library of the Smithsonian Institution Libraries in fiscal year 1983, was increased by approximately 150–200 volumes. Many of these are highly technical references needed to continue the research on our orchid collection. Marguerite MacMahon, a volunteer, has diligently continued to maintain the inventory and storage records of the large number of periodicals received by the office each year.

The donation of the Burpee Collection was received by the office during 1982–83. This extraordinary gift of more than 25,000 seed-trade catalogues, records, and memorabilia from the W. Atlee Burpee Company and the late Mrs. David Burpee is rapidly becoming available as a result of the work of horticultural and landscape historian Kathryn Meehan and volunteers Sally Tomlinson, Helen Gunderson, and Jeanne O. Shields. Working with the Smithsonian Institution Libraries, Mrs. Meehan has coordinated the unpacking, sorting, fumigating, cataloguing, and organizing of this important collection, which will be housed in the Office of Horticulture Library, located on North Balcony of the Arts and Industries Building. To date, 12,715 catalogues, through the year 1913, have been processed.

In July 1984 the James Smithson Society provided a grant of \$35,000 to purchase a collection of 150 volumes on the History of Landscape Architecture in America, 1799–1938. This rare collection, assembled by Elizabeth Woodburn, antiquarian bookseller and horticultural historian in Princeton, New Jersey, will be invaluable for current and future research on the history and evolution of horticulture and landscape design.

Another small but significant collection of seed-trade records, correspondence, and tools was received from Gladys and Florence Whitehead, descendants of the Bedman family who founded the Bedman Brothers Seed Farm in 1843 near Rahway, New Jersey. The Bedmans produced seed for many important companies, including W. Atlee Burpee. They were noted for their development

of seed for the popular nineteenth-century "bedding-out" plant, salvia, in addition to many others.

The Interior Plant Program was transferred from the Education Division to the Grounds Management Division for the installation, maintenance, and rotation of all interior plants. This transfer has streamlined our service to Smithsonian bureaus. Renovations of the permanent galleries at the Freer, National Air and Space Museum, National Museum of African Art, and Hirshhorn Museum and Sculpture Garden were completed in 1984 along with large installations of plants for the *Whistler* exhibition at the Freer; *Ban Chiang* at NMNH; and the Palm Court at NMAH. All plants were selected by Lauranne Nash to complement the exhibitions and/or decor of the particular gallery as well for their ability to withstand the environmental conditions. The office maintains on a daily basis over 2,000 plants throughout the Smithsonian Institution.

Volunteers Bruce Buntin, Dorothy High, and Charlene Hescocock completed another successful year of weekly maintenance and rotation of rare and unusual plants and floral arrangements for the exhibition *A Victorian Horticultural Extravaganza*.

Recruitment for the Student Intern Program was conducted in fiscal year 1984 by mailing more than 1,100 letters to horticultural schools and members of professional societies. As a result, the following interns worked with this office: Melissa Pilant, Washington State University, referred by the Smithsonian Office of Elementary and Secondary Education, spent five weeks as a junior intern in all divisions; Mr. David Steingrubey, University of Florida, registered for a one-year internship working in our orchid collection; and Jennifer Dimling, Colorado College, began working at the Greenhouse-Nursery Division in September 1984.

Lauranne Nash has continued to serve on the Smithsonian Institution Internship Council and was elected to serve as cochairperson for one year beginning in January 1985.

The Grounds Management Division, under the direction of Kenneth Hawkins, completed many projects this year, including the relandscaping of the courtyard at the National Portrait Gallery and the National Museum of American Art; installation of eighty rare white quince along the walls of the Hirshhorn Museum and Sculpture Garden; installation of new tubbed plants on the third-floor terrace and flower boxes for the west terrace cafeteria at the National Air and Space Museum; relandscaping the National Museum of African Art's courtyard by installing a magnificent Victorian cast-iron fountain (c. 1849, J. W. Fiske), Victorian

benches and lamp posts, as well as tubbed plants; the landscaping of the Victorian Bandstand and Calder Sculpture at the NMAH; and the creation of a new garden at the Barney Studio House in time for the American Association of Museums conference. Through the efforts of Gerald Dobbs, an Office of Horticulture gardener, the Fragrant Garden (East Garden) continued to evolve as a sensory attraction for the handicapped. The Grounds Management Division, assisted by John W. Monday, assistant director, and Maureen Coleman, completed the removal of plantings from the east end of the National Air and Space Museum in preparation for the new restaurant. Most of the plantings were relocated at the Museum Support Center.

In addition to these major projects, the Grounds Management Division was responsible for snow and ice removal; replacement of the dead hawthorns with ginkgo trees at NMNH; and the plantings of 55,000 spring bulbs, 14,000 pansies, and 22,000 flowering annuals.

The Greenhouse-Nursery Division produced 14,000 pansies, 30,000 annuals, 13,000 cut flowers, 700 tropical plants, and over 12,000 seasonal potted plants for special events, interior plant displays, and exterior flower beds and borders. In addition, the Greenhouse-Nursery Division provided special plantings for the Victorian Bandstand installed at the NMAH, and the perennials and woody plants for the Barney Studio House Garden.

Several improvements were made to the greenhouse-nursery complex to improve safety conditions and to reduce temperature fluctuations that are damaging to plant materials. The plant collections in the greenhouse continued to expand at a modest pace; at the same time the office evaluated existing collections to allow for the disposition of poor quality genera, species, and hybrids. In November 1983 Paul E. Desautels, guest curator of the Orchid Collection, and Buckler, director of the office, visited Mrs. Beverly Pabst in Hillsborough, California, to pack the remaining orchid collection of the late Rudolf Pabst. The 247 extremely rare "stud" plants that were donated to the office by Mrs. Pabst this year will be a vital addition to the 2,000-plant collection she donated in 1979. The office also acquired 200 species of orchids from Brad Van Scriver of Garden Grove, California.

More than 40 percent of the Black River Collection, acquired in 1982, has flowered and evaluations have been made. The plants not worthy of the National Orchid Collection are exchanged and traded for new plants or supplies, primarily under contract with

Kensington Orchids, Kensington, Maryland. In addition, the office provided surplus plants to the National Zoological Park, the U.S. Botanic Gardens, and the National Aquarium in Baltimore. The office is now installing a tissue culture laboratory for the propagation of rare and desirable clones and endangered species. In October 1983, the office exhibited about forty mixed hybrids and species from the National Orchid Collection at the National Capital Orchid Show held at the U.S. National Arboretum. An exhibit has been planned for the 1984 show.

The Bromeliad Collection was inventoried this year and the data collected will be entered into the computer in fiscal year 1985. This remarkable collection of over 800 plants (350 hybrids and species) is often displayed with our orchid collection in interior exhibitions throughout the Smithsonian Institution museums. In addition, the office has now developed collections of 110 varieties of *Hedera helix* (English Ivy) and twenty-four varieties of *Hosta*.

In March 1984 the office established a full-time position to handle the records and accessioning system of the Greenhouse-Nursery Division thus permitting the office to reduce the accessioning backlog by more than 80 percent. Over 18,000 accessions were entered into the computer bank this year—primarily of the orchid collection. Desautels will continue to edit all data from our computer printouts, and an accurate inventory should be available early in the fall of 1984. Thirty percent of the plants in the orchid collection have been arranged in the greenhouses in alphabetical order by scientific name so that the physical inventory of the collection can be cross-indexed with the computer records.

The office has worked throughout the year on the new Enid A. Haupt Garden for the Quadrangle. The completion of this garden in 1986–87 will mark the opening of a distinguished new American garden for public enjoyment. Director James R. Buckler and the Office of Horticulture staff have been working closely with John-Paul Carlhian, architect for the Quadrangle, from the Boston firm of Shepley, Bulfinch, Richardson, and Abbott, and landscape architect Lester Collins in the development of the landscape plan. The office has already selected specimen plants and has collected original period garden furnishings, including vases or urns, settees, garden sculptures, lamp posts, and wickets or lawn guards for the garden. Many of the new garden furnishings are labeled pieces from such important nineteenth-century foundries as J. W. Fiske, J. L. Mott, Kramer Brothers, William Adams, and J. McLean. The Enid A. Haupt Garden will be created as an outdoor exhibition

gallery of plants, garden furnishings, and accessories. The office is now researching and designing the embroidery parterre, bedding designs, and the plantings appropriate for the garden vases. The Greenhouse-Nursery Division will begin production of much of the material needed for the bedding designs in the fall of 1984.

In October 1983 the IV Internationale Gartenbau Ausstellung (IGA 83) in Munich closed to the public. The Smithsonian Institution American Garden, designed by James R. Buckler and Kathryn Meehan, was presented a silver award by the German Association of Landscape Architects. More than eleven million visitors toured this grand international exhibition in 1983. For her enduring support and generous financial contribution to the American Garden, Honoré Wamsler, an American living in Munich, was awarded the Smithsonian Medal and a citation of appreciation by Secretary Ripley at a luncheon in her honor on February 7, 1984. On September 11, 1984, Dr. Detlef Marx, director of IGA 83, and his family visited the Smithsonian to express his gratitude for the Institution's participation in the Munich show.

Staff members continued to support civic and educational programs. John W. Monday agreed to serve three more years on the Horticulture Advisory Committee of the Northern Virginia Community College and to serve as chairman of the Eastern Regional Advisory Council of the "Horticulture Hiring the Disabled." Lauranne C. Nash completed a year's service as president of the D.C. branch of the Professional Grounds Management Society and began serving another one-year term as chairman of the board of the branch.

Buckler served on the board of directors of the Rockwood Museum, the finest rural Gothic estate left in America, located in Wilmington, Delaware; and the National Colonial Farm, a joint project of the Accokeek Foundation and the National Park Service in Accokeek, Maryland; he was also elected to the board of the new Kentucky Botanical Gardens in Louisville. For much of the year, Buckler served on the Long-Range Planning Committee of the National Colonial Farm to establish a workable management, educational, and research plan through the year 2005.

In addition, Buckler continued to present educational programs to museums, botanical gardens, and historical societies throughout the year. A lecture entitled "The Horticultural Extravaganza of the Victorian Era" was presented to the Garden Club of Wilmington, Delaware (January 9); Fairfax Virginia Garden Club (January 10); the Goose Creek Herb Guild of Middleburg, Virginia (March 25);



and the Golf Course Superintendents of Metropolitan, D.C. (April 24). Major presentations were given on the history and evolution of nineteenth-century horticulture in America at the "Old Home and Garden Fair" at the Margaret Strong Museum in Rochester, New York (March 23); the annual meeting of the Congressional Cemetery Association, Washington, D.C. (March 24); the first "Art in Bloom" program, Minneapolis, Minnesota Institute of Arts (May 10); and the Strawberry Banke Museum in Portsmouth, New Hampshire (September 14).

On July 25, 1984, Buckler was awarded Honorary Membership in the American Academy of Floriculture by the Society of American Florists (SAF) "in recognition of his efforts on behalf of the floral industry and SAF-The Center for Commercial Floriculture." This award was presented during the 100th anniversary of SAF. For the SAF centennial publication, Buckler and Kathryn Meehan wrote an article entitled "A Victorian Horticultural Extravaganza" that highlighted the early years of the floricultural and horticultural industry in America.

On February 8, 1984, Lauranne Nash represented the Office of Horticulture at the Second Annual Horticultural Career Day at the University of Maryland, for horticultural students in the Washington, D.C., area. She provided information on horticultural careers at the Smithsonian and other government agencies. On March 6, 1984, she lectured to the students in the Institute of Applied Agriculture's Horticulture Seminar at the University of Maryland on the Interior Plant Program at the Smithsonian. She also served as a horticulture judge for the Arlington County Fair in Virginia on August 23, 1984.

The office continued to work with the Smithsonian Resident Associate Program in providing tours of the Greenhouse-Nursery Division and the Philadelphia Flower Show.

Participants from across the United States and as far away as China enthusiastically joined the Office of Horticulture for a broad offering of horticultural lectures, seminars, and workshops during fiscal year 1984.

In commemoration of the Bicentennial of the Treaty of Paris, an all-day seminar was offered by the Smithsonian Resident Associate Program on October 20, 1983, entitled "The Great Garden Exchange." Coordinated by Buckler and Mrs. Meehan, a panel of horticultural historians explored the dominant garden traditions and exciting experiments that distinguished the period 1750 to 1830 in the United States, England, and France. Panelists and their

lectures included: Dr. Joan Challinor, chairman, National Committee for the Bicentennial of the Treaty of Paris, "Historical Overview of the Period"; Julia Davis, garden historian, "Atlantic Letters: The English Landscape Influence in North America"; Howard Adams, garden historian and guest curator of the 1976 National Gallery of Arts exhibition *The Eye of Thomas Jefferson*, who spoke on "The French Garden's Influence in America"; Eleanor M. McPeck, landscape historian and instructor, Radcliff College Seminar Program in Landscape Design, "Modern Gardening in America"; and Buckler, "Gardens of American Statesmen: Mount Vernon, Woodlawn, Williamsburg, and Monticello."

The office also coordinated "Gardens by Design," a week-long in-depth seminar and tour program of major horticultural sites in and around Washington, D.C., offered by the Smithsonian National Associate Program, April 29–May 4. Forty-three participants studied the arts of designing and planting large and small gardens of historic or contemporary nature. Tours of historic properties, estate gardens, botanic collections, and modern greenhouse-production facilities were led by staff and guest horticultural specialists.

Through the sponsorship of the Office of Museum Programs, "Horticulture in a Museum Setting," a three-day workshop (June 27–29), was coordinated by the Office of Horticulture and introduced twenty museum professionals to the horticultural possibilities in and around museum buildings. The workshop covered such topics as the history of gardens, the relationship of horticulture to collections, basic maintenance, growing methods, historic horticultural research, landscape design, the selection and maintenance of interior plants, design and installation of seasonal decorations, design and installation of signage in the garden, putting garden plans on paper and into print, fundraising, and volunteer assistance. The workshop included tours to a number of horticultural sites in the Washington area.

Buckler conducted tours of the Hirshhorn Museum and Sculpture Garden; *A Victorian Horticultural Extravangaza* exhibition; the Horticultural Research Center, Hillwood Gardens; and, together with the staff, the Smithsonian greenhouses and collections. A tour of Dumbarton Oaks was conducted by Donald Smith, superintendent of grounds; and Erik Neuman, curator of education, led a tour of the National Arboretum.

The Office of Horticulture entered its thirteenth year as a unit of the Smithsonian Institution in the summer of 1984. The upcoming two years promise to be very exciting, with the develop-

ment of a new greenhouse-nursery facility at the U.S. Soldiers' and Airmen's Home, the continued work on the Enid A. Haupt Garden, and the publication of research data by the director on the history and evolution of horticulture in America during the nineteenth century. It is anticipated that the office will continue to expand its educational, research, and exhibition programs for all of the museums and to offer additional seminars, workshops, and lecture series on practical and historical horticulture.

### *Office of Museum Programs*

The Office of Museum Programs (OMP) of the Smithsonian Institution provides training, services, information, and assistance for the professional development of museum personnel and institutions throughout the United States and abroad. Its goals and objectives are fulfilled by coordinated activities that are woven into a total program of distinct but interrelated training activities, services, and research into methods that will improve the effectiveness of museum operations and practices nationally and internationally.

From the diverse and extensive resources and expertise of the Smithsonian, the Office of Museum Programs offers museum training workshops, both in Washington, D.C., and on site; arranges for internships, short-term professional visits, and foreign professional training and group projects; provides an awards program for minority museum professionals; produces and distributes audiovisual presentations on conservation awareness and theory, preventive care of collections, and practices in educational programming; provides training, technical assistance, audiovisuals, and consultation services for Native American museums; produces publications on museum-related topics; offers counseling, consulting services, and conferences on museum careers, training, and museum practices; and administers a special national project under a grant from the W. K. Kellogg Foundation to "expand the educative influence of museums." A branch of the Smithsonian Institution Libraries, the Museum Reference Center provides bibliographic and documentary support for the activities of OMP and is available to museum professionals, students, and researchers.

The grouping of these functions into one program facilitates response of the Institution to the multitude of requests received

from museums throughout the United States and abroad for assistance and guidance, and has the added benefit of keeping the staff of the Institution informed and aware of museological developments elsewhere.

The Office of Museum Programs serves as the focal point and clearing house for the Smithsonian Institution Audiovisual Advisory committee and for metric transition activities of the Institution, and assists with planning efforts for a conservation training program to be offered by the Conservation Analytical Laboratory.

The Kellogg Foundation awarded a generous three-year grant to the Office of Museum Programs and the Resident Associate Program "to expand the educative influence of museums" everywhere. With the guidance of a national advisory committee, the Office of Museum Programs is implementing the program through colloquia, workshops, residencies, and videotapes for museum professionals throughout the United States. Interacting with colleagues and representatives of such community resources as universities, libraries, corporations, organizations, and school systems, the program is emphasizing and promoting the influence of museums as educational institutions while examining and discussing the learning process that occurs in them.

#### *TRAINING PROGRAM*

The Training Program consists of a Washington-based workshop series, on-site workshops, the Internship and Visiting Professionals Programs, the Awards for Minority Museum Professionals, and two United States Information Agency / Office of Museum Programs cosponsored projects per year, supervised by Mary Lynn Perry, Training Program Coordinator.

#### *WASHINGTON-BASED WORKSHOPS*

The Office of Museum Programs sponsors an annual schedule of twenty-five to thirty short-term workshops in museum practices which provide mid-career training opportunities for museum professionals from the United States and abroad. The workshops last from three to five days and are held at the Smithsonian Institution. They focus on current theories and practices in the field, and make Smithsonian materials, facilities, and human resources available to the larger museum community.

Faculty for the workshop series are drawn from the Institution's staff, and from outside experts who join programs to offer special-

ized information or speak from a particular perspective. Subject matter covers a broad range of topics on all aspects of museum operations; topics include museum management, fundraising, educational programming, conservation, collections management, storage and handling, exhibition design and production, volunteers and docent training, security, shop management, horticulture in museums, registration methods, and public relations.

During 1984 over 550 museum professionals enrolled in the Washington-based workshop series. Enrollment represented all types, sizes, and disciplines of museums, and a broad geographic distribution, including 43 states in the continental United States, Alaska, Hawaii, and the District of Columbia. In addition, museum professionals from Bermuda, Canada, France, Hong Kong, New Zealand, Trinidad, Venezuela, Puerto Rico, and the Virgin Islands participated in the workshops.

During 1984 the training program developed a new week-long workshop, "Orientation to Museum Work for Entering Professionals," based on the recommendations of the International Council of Museums Committee for the Training of Personnel. The committee recommended basic museological training of museum staff at all levels while providing an overview of sound museum practices, especially for new museum professionals. This workshop gave individual museum workers an understanding of the museum's role in society, and an understanding of their own roles in the museum.

Evaluations by the participants indicated the success of this new workshop offering and "Orientation" was scheduled for presentation again in August 1984. As one participant noted: "Not only was there a tremendous amount of valuable information, but the inspiration which [came] from it all [was] so great that I can hardly wait to go back to work!"

Other new workshops in 1984 included "Horticulture in a Museum Setting," "Participatory Exhibitions," "Public Programs," "Museum Graphics," and "Curatorial Roundtable."

#### *ON-SITE WORKSHOP PROGRAM*

The On-Site Workshop Program is designed to provide training services to museum professionals at locations throughout the United States and abroad with the cooperation and cosponsorship of host museums, institutions, and museum-related organizations. The workshops, which are generally two to three days in length, draw faculty from the Smithsonian's professional staff although

other on-location experts may be called upon to supplement presentations and assist in developing a local resource network for the workshop participants.

During fiscal year 1984, the program, coordinated by Pamela W. Leupen, presented ten on-site cooperative workshops at museums in California, Florida, Illinois, New York, South Carolina, and throughout Virginia. Enrollment totaled 176 museum professionals representing museums in California, Connecticut, Delaware, the District of Columbia, Florida, Illinois, Maryland, Massachusetts, Missouri, North Carolina, New Hampshire, New York, Ohio, Pennsylvania, South Carolina, Vermont, and Virginia. Cosponsors for the workshops included the Virginia Association of Museums, the Southern Arts Federation of Museums, the California Museum of Afro-American History and Culture, and the New York Regional Conference of Historical Agencies.

Sustained growth in the On-Site Workshop Program is anticipated for 1985, including a workshop on "Preventive Care in Pakistan," and the program will continue to be a strong and beneficial response to the training needs of museum professionals.

#### *INTERNSHIP PROGRAM*

The Smithsonian Office of Museum Programs Internship Program offers specialized training in museum practices to undergraduate and graduate students as well as to employed professionals. Individuals from the United States and abroad are eligible to participate in the program. During 1984, the program, coordinated by Raymond Branham, placed 111 individuals in internship positions throughout the Institution, an increase of sixty-one over the previous year. Eleven of these interns were from foreign countries. The internships often carry academic credit from a university and the average duration is from three to six months, with shorter or longer programs available.

The focus of the internships is on museum practices; the intent is for the experiences to be mutually beneficial to the intern and to the Institution. Intern assignments may involve training in administration, education, collection management, registration, exhibition design and production, and curatorial practices. Interns may attend Office of Museum Programs workshops while in residence at the Smithsonian. Long-term interns, especially those from foreign countries, often elect to travel as part of their program. In such cases, the Office of Museum Programs prepares itineraries and contacts staff at appropriate museums throughout the United

States; in some cases, arrangements with foreign museums may be made. The Office of Museum Programs coordinates meetings, lectures, and special presentations by foreign interns to supplement the interns' museum experiences. In 1984, special presentations were given by Des Tatana Kahotea of New Zealand and Dr. Fawzi Sweha Boullos of Soloman, Egypt.

In addition to fulfilling regularly assigned responsibilities, interns participated in the annual Office of Museum Programs Museum Careers Seminar Series, a seven-week program, from June 20 to August 1, which offered Smithsonian and other museum interns in the Washington area exposure to professional career choices in the museum field. After the success of last year's program, attendance in the seminar in 1984 increased to thirty-eight participants, with a waiting list. To further enrich the seminar, special tours were offered, including a behind-the-scenes exploration of the exhibition design and production areas of the National Museum of Natural History and the new Indian House at Hillwood Museum. Evaluations, which students completed at the end of the seminar, indicated that the experience was extremely useful in understanding the duties, responsibilities, and qualifications required in the careers that were discussed.

#### *VISITING PROFESSIONALS PROGRAM*

A specialized service is offered to museum professionals interested in shorter periods of training and study than is required by the Internship Program. Through the Visiting Professionals Program, museum professionals gain access to collections and Smithsonian staff for concentrated discussion and consultation. The program is designed to serve individuals who are available for training periods of up to one month and consists of a combination of meetings, workshop activities, demonstrations, research opportunities, and visits to museums selected to meet special training needs. During 1984, one hundred and sixty individuals representing museums in the United States and seventy-five from abroad participated in the program. The number of participants in this year's program nearly doubled last year's enrollment.

#### *EXTERNSHIP PROGRAM*

The Office of Museum Programs responds to special requests for programming related to museum studies and the museum profession, and in 1984 continued a program, initiated in 1983, for high

school and college students who are interested in learning more about a museum career by being exposed to the duties and responsibilities of museum work.

This year, fifty-eight students participated in the program, most of whom were enrolled in the Multicultural Bilingual High School of Washington, D.C., a national model which offers English as a second language. Ten countries, including El Salvador, Guatemala, and Cambodia, were represented by these students.

The students are referred to as externs since their experience is generally one week in duration and emphasizes the daily operations of the working world as it relates to the museum field. A general orientation session begins the externship, which concludes with an evaluation and resumé-writing session.

#### *COSPONSORED PROJECTS*

With the United States Information Agency, the Office of Museum Programs cosponsored a project on "Museum Administration" for European museum professionals in the fall of 1983. The project included curators and directors from Belgium, Czechoslovakia, the Democratic Republic of Germany, the Federal Republic of Germany, Italy, Romania, and Yugoslavia. The group members attended an Office of Museum Programs seminar designed to introduce them to diverse techniques of museum administration in the United States. Participants visited museums of varying sizes and disciplines in New York, Boston, Chicago, Santa Fe, and San Francisco. The group had an opportunity to view museum collections and to exchange ideas and information with staff members concerning a variety of topics related to museum administration. Participants also attended the Northeast Museums Conference Annual Meeting.

The fifth annual "Education in Museums" multiregional project, cosponsored by the Office of Museum Programs and the United States Information Agency, was held in May and June, 1984. Thirteen museum professionals representing nine foreign countries participated. Directors, educators, and curators from Costa Rica, the Federal Republic of Germany, Hungary, Iceland, Mexico, Palau, Senegal, Syria, and Tanzania were included. A seminar addressing various facets of museum education at the Institution included sessions on "What and Why—Museum Education," "School Programs," "Scholarly Research," "Public Access to Collections," "Museums and the Community—Inhouse and Outreach Programs," and "Museum Education and Special Audiences." Following the





Theresa Singleton (left), historical researcher from the South Carolina State Museum, and Deborah Willis-Thomas, photograph specialist, Schomburg Center for Research in Black Culture, New York City Public Library, use the resources in the Museum Reference Center while visiting the Smithsonian as participants in the Office of Museum Programs' Minority Awards Program.

seminar, the group visited museums in five other American cities to view museum education programs in action and to discuss mutual interests with staff. A final "Education Forum" was held in San Francisco to permit discussion of the foreign participants' observations and reactions to the programs observed in the American museums. The group returned to Washington to attend the annual American Association of Museums meeting.

The two Office of Museum Programs / United States Information Agency cosponsored programs represent a continuing effort on the part of both sponsors to make possible an international professional exchange between American museum professionals and their international colleagues. Following the success of these two programs, the Office of Museum Programs has been requested by the United States Information Agency to coordinate a newly developed third project concerning conservation and preventive care of collections in fiscal year 1985.

#### *AWARDS FOR MINORITY MUSEUM PROFESSIONALS*

A new activity in 1984 conducted jointly by the Training Program and the Native American Museums Program was "Awards for Minority Museum Professionals," providing up to \$500 for seventeen museum professionals to stay in residence for two weeks at the Smithsonian. The professionals attended a selected workshop from the Washington-based series and spent the remainder of their time in individual study at the Institution. During the second week the professionals had access to Smithsonian collections, staff, and facilities on a scheduled basis. Their programs incorporated meetings, tours, demonstrations, visits to laboratories, and observations of specialized techniques and programs in action. The participants represented fourteen states and included three Native Americans, two Hispanics, one Asian, and eleven blacks. Matching funds were provided by the Office of Equal Opportunity.

#### *AUDIOVISUAL PROGRAM*

In fiscal year 1984, the name of this program was changed from Conservation Information Program to Audiovisual Program. The new name reflects the broader range of topics now covered by the audiovisual productions of the Office of Museum Programs. In addition to conservation, these topics include museum interpretation, visitors, and careers; protection; historic preservation; and folklife.

The Audiovisual Program, coordinated by Laura Schneider, produces and distributes training and educational videotapes and slide/cassette packages on these subjects for use by museums, libraries, universities, cultural institutions, and interested individuals. Most programs are accompanied by a printed text. Their primary purpose is to increase awareness of current techniques and practices in preventive care of museum collections and cultural property.

New audiovisual programs include a videotape on security entitled "On Guard: Protection Is Everybody's Business"; a slide/cassette program called "Photographic Negatives in the Juley Collection: Their Care and Preservation"; and a slide/cassette program designed as an introduction to the Office of Museum Programs.

Programs being completed include a videotape on the preventive conservation of outdoor sculpture at the Hirshhorn Museum and Sculpture Garden and a slide/cassette program on lighting for the care of collections. Plans for productions in 1985 include videotapes on gilding and historic preservation. "Tribal Archives II," a continuation of the instructional tape for Native American groups, is also projected. Translations of several audiovisual programs in other languages are planned for 1985 as well.

Since 1974, when the Audiovisual Program began, 5,874 presentations have been distributed on short-term loans. In 1984, 261 slide programs and 421 videotapes were loaned to museums, other institutions, and individuals.

In 1984, forty slide programs and 147 videotapes were sold to museums in Italy, Australia, and Taiwan. In addition, 1,092 separate texts were disseminated to institutions and individuals on request. Copies of the texts were also sent free of charge to libraries requesting them. Two slide/cassette programs on preventive care of collections were donated to Saudi Arabia. An inventory of the Office of Museum Programs audiovisual materials was completed for the use of Smithsonian Institution staff.

#### *NATIVE AMERICAN MUSEUMS PROGRAM*

The Native American Museums Program was established in 1977 to provide information services and educational opportunities to employees of tribal and urban Native American museums and cultural centers and others who work closely with Indian, Eskimo, and Aleut collections. The program offers workshops, short-term residencies, technical assistance, publications, and audiovisuals

that enable participants to understand and implement the basic operations and research functions of cultural institutions. It serves as the point-of-contact for Native Americans requesting professional training and museological assistance from the Smithsonian. The program actively fosters a network of communication and support among members of the Native American cultural community and the museum field; it promotes liaison with allied disciplines and professions, and with public- and private-sector organizations and agencies on national, regional, and state levels.

Three special outreach projects highlighted the 1984 Native American Museums Program year:

National Program Residencies, supported by the Smithsonian Educational Outreach Program and designed to complement the educational activities of the 1983 national workshop for Native American museum and cultural center directors, were offered to eight employees of tribal museums. Each resident received two weeks of training at the Smithsonian on an individually selected topic.

The editing and publication of the *National Workshop Proceedings*, also made possible by the Outreach Program, is in progress. These *Proceedings* make important information available to those who are unable to attend the workshops. Dissemination will occur in 1985.

A slide/tape program, "Tribal Archives: Basic Responsibilities and Operations," is being completed. It describes ways to organize and administer a program for the care of historical records. Case studies, model forms, and procedural manuals from Indian programs are used to illustrate the main points. An evaluation of the program was conducted by Indian archivists at on-site training conferences in Santa Fe and San Francisco, and by archivists and educators at professional meetings throughout the country. This is the second audiovisual program produced in collaboration with the Native American Archives Project for use by Indian communities. The first, "Tribal Archives: An Introduction," defines basic archival concepts and provides examples of its value to the community. It was selected for presentation at the Tenth International Congress of Archives held in West Germany during September.

Nancy J. Fuller, coordinator of the Native American Museums Program, organized and chaired the session, "Minorities and the Profession: Developing Actions to Encourage Broader Minority Staff Representation," for the American Association of Museums

annual meeting, and served as a panelist for the "Tribal Archives" session at the Midwest Museum conference conducted by the Oneida Nation Museum. Other projects included the publication of the bibliography, "Native American Museums and Related Issues," in the *Council of Museum Anthropology Newsletter*, the updating of "Some Resources Useful to Native American Museums," and preparing new issues of the Native American Museums Program newsletter.

#### THE KELLOGG PROJECT

The goal of the Kellogg Project, which is supported by a grant from the W. K. Kellogg Foundation, is "to expand the educational role of museums." During its second year, increased emphasis was placed on the importance of collaboration among museums, leading to the creation of active, continuing networks of museum professionals.

In 1983-84, the Project arranged six regional workshops and twenty-two professional residencies at the Smithsonian and elsewhere and began educational demonstration programs at twelve participating museums. Four-day workshops, entitled "Museums as Learning Resources," were organized in each of the six regions: New England (Boston, Massachusetts); Northeast (Bronx, New York); Southeastern (Charlotte, North Carolina); Midwest (Toledo, Ohio); Mountain-Plains (San Antonio, Texas); and Western (Portland, Oregon). These workshops succeeded in bringing together within each region twenty-two museums and other educational institutions (involving 132 participants) to discuss current issues and problems in museum education and, most important, to form the nucleus of an active and ongoing network of museum professionals both regionally and nationwide.

Two categories of professional residencies were designed to fulfill Kellogg Project objectives. First, the "Kellogg Museum Professionals at the Smithsonian" program brought to the Smithsonian for individualized residencies ten museum professionals who were involved in the regional workshops. During a week of study these professionals met with Smithsonian staff and area professionals to exchange program ideas and expertise. Second, the twelve museums participating in demonstration projects developed residencies, based on aspects of their educational programs, which took place at the Smithsonian and at other appropriate museums.

Examination of the learning process in museums and evaluation of the effectiveness of all activities are part of the continuing ac-

tivities. The twelve demonstration programs, designed as practical applications of Kellogg Project philosophies, will be the focus of activity in 1984–85. There will also be a colloquium, specialized workshops and residencies, and production of a videotape to continue to explore the educational process in museums. Planning for dissemination of results of the program activities is underway.

Two meetings of the National Advisory Committee were convened for review of the progress of the Kellogg Project.

#### MUSEUM REFERENCE CENTER

The Museum Reference Center, a branch of the Smithsonian Institution Libraries associated with the Office of Museum Programs, and the only comprehensive museological documentation center in the United States, centers its activities around searching and providing information, bibliographic services, and distribution of materials to museum professionals and students researching specific aspects of museology and to the public in need of museum administrative guidance. Administrators, curators, trustees, friends of museums, educators, exhibitors, registrars, conservators and students of the field have received assistance with their investigations, problems and studies.

The Museum Reference Center's staff, volunteers, and interns answered over fifteen hundred inquiries originating from museum professionals, researchers, and students in the United States, Canada, and forty-eight foreign countries. Over five hundred persons visited the Center to study, tour, and learn about its unique collections. Special tours were provided for delegations and individuals from Bangladesh, Belgium, Chile, Denmark, France, Hungary, India, Ireland, Japan, Sudan, the Netherlands, and the United Kingdom.

In response to a request sent by the Kellogg Project staff to 6,000 museums, educational materials were received from thousands of institutions throughout the country. The materials were recorded, classified, and filed in the Museum Reference Center, and many of these program publications are now in use by the residents of the Kellogg Project.

In April, the Museum Reference Center published the inaugural issue of *Muse World*, which lists new books being acquired and new journal titles. Issues will be published on a quarterly basis as a current awareness service within the Smithsonian and to museum professionals upon request.

Nineteen bibliographies and resource guides were compiled and published. Among the new titles are:

Participatory Exhibits  
Museum Directories in the United States  
Technology and Computers in the Museum Environment  
Evaluation Studies in Museums and Art Galleries  
Selected List of Periodicals in English of Interest to Museum Professionals  
Traveling Exhibition Organizations: A Resource List  
The Use of Audiovisuals, Holography, and Videodisc/Optical Disc in Museums and Other Related Institutions  
Horticulture and Gardening in the Museum Setting

The following bibliographies were completely revised and updated:

Museum Security  
Museum and Exhibition Lighting  
Education in Museums  
Labeling: The Words You Exhibit  
Museology  
Museum Architecture and Adaptive Use: Bibliography and Resource Guide  
Museum Insurance  
Exhibit Design  
Museums and the Handicapped  
Museums and Minorities

A total of sixty bibliographies on museum-related topics are now available free of charge.

Interns were Jodi Wesemann, Anne B. Wheeler, Dawn Scher, Theresa Courke (South Africa), and Dorothy Foster. The regular volunteers, Carolyn Shugars, Barbara Bowen, and Renata Rutledge, worked one day a week throughout the year to complete several projects, in addition to their duties of classifying incoming documents, typing, and researching inquiries. *Muse World* was compiled by Carolyn Shugars, and Renata Rutledge assisted in the compilation of the bibliography of "Museum Security."

New staff member Ed Johnson joined the Museum Reference Center as a library assistant in May 1984. His duties include serial control and the organization of the documentary files, which includes updating the records and disposing of outdated material and duplicates in the collection.

The Librarian and staff addressed twenty-one workshops sponsored by the Office of Museum Programs, explaining the services of the Museum Reference Center to the participants. Bibliographies on all workshop topics were distributed and many of the participants either toured the Center or took time to conduct private research.

#### OTHER ACTIVITIES

The Office of Museum Programs offers career counseling for persons interested in the museum field or career changes, undertakes organization of national and international conferences, provides consultation services for museum studies programs at universities, and advises units of the Smithsonian Institution (including International Activities, Symposia and Seminars, Smithsonian Institution/ALIABA Museum Law Conference, and Programs for the Disabled) on museum aspects of their work.

Over one hundred consultations on museum practices and organizations were provided to individuals and to delegations during 1984, many from other countries, including the People's Republic of China, India (3), Mexico, the Federal Republic of Germany, Nigeria, Belgium, Hungary, Denmark (2), Australia, Austria (2), Spain (2), Saudi Arabia, Gabon (2), Sudan (2), Bangladesh, Pakistan, Poland, France (2), Costa Rica, South Africa, Benin, Israel, Dominican Republic, United Nations (2), Cameroon, Egypt, Japan, Korea, Taiwan (2), Shanghai, Brazil, Haiti, New Caledonia, as well as UNESCO, an inspection team from the United Nations, and a group representing fourteen Latin American countries.

Staff members of the Office of Museum Programs annually serve as speakers at regional and national museum conferences, provide consulting services, and are actively engaged in international museum activities. They attended professional meetings of the International Council of Museums, International Council of Museums Advisory Committee, International Council on Monuments and Sites, Art Table, Smithsonian Institution/UNESCO Conference on Preservation, National Art Education Association, Smithsonian Institution Budget Seminar, Foreign Service Institute, American National Metric Conference, the Midwest, Northeast, Southeast, New England, Western, and Mountain-Plain Museum Conferences, American Association of Museums, and the Kennedy Center meeting on Media and the Arts.

Director Jane Glaser serves on the board and is secretary of the International Council of Museums Committee on Training of



Personnel; serves on the International Council of Museums Advisory Committee; serves on the scholarship committee for Smithsonian Institution/ALIABA Museum Law Conference; serves as an American Association of Museums senior examiner for accreditation and reaccreditation; serves as chairperson of the Smithsonian Institution's committee for planning of the Conservation Training Program at the Smithsonian Support Center; chairs the Smithsonian Institution Audiovisual Advisory Committee; and serves as the Coordinator of metric conversion at the Smithsonian, attending the governmental interagency meetings. A Smithsonian Institution metric exhibition is under consideration. The Office of Museum Programs is represented on the Smithsonian Institution Internship and Conservation Councils and on the pan-Institutional Native American coordinating committee.

In 1984 the Office of Museum Programs director made presentations to: the District of Columbia Multi-Cultural Program, the International Council of Museums Committee for Training of Personnel in Leiden, the Office of Museum Programs Careers Seminar Series, the Office of Museum Programs / United States Information Agency projects participants, the Kellogg Workshops, the American Association of Museums sessions on national collaboration and on certification of curators, District of Columbia high school students, the Sietar international meeting, the National Council on the Aging, the National Art Educators Association, Mount Vernon College, the Southeastern Museum Conference, international visitors, the Office of Museum Programs, the Museum of American History Museum Technicians, George Mason University, Smithsonian Institution interns, and George Washington University classes in museum studies.

Mrs. Glaser represents museums as subcommission chairperson on a Commission for the Social Sciences organized by the International Research and Exchanges Board which is exploring the possibilities of exchanges of personnel, publications, and research with the German Democratic Republic. Meetings have been held in the German Democratic Republic and the United States. She organized a Museum Management Seminar, conducted in the German Democratic Republic, and presented a paper on "Museums as Learning Resources." She served as consultant to the Blennerhasset Island Commission, to the Beckley, West Virginia, Museums, and to the National Museum of Denmark, and as evaluator for the University of Oklahoma Museum Studies program.

The Office of Museum Programs published and distributed a

"Survey of Audiovisual Programs Produced by the Smithsonian Institution" which lists and describes all film, video, slide recordings, and filmstrip programs produced by units of the Smithsonian Institution. The Office of Museum Programs publishes and distributes brochures on its programs and in 1984 distributed approximately two thousand copies of *Museum Studies Programs in the United States and Abroad* and approximately five hundred copies of the *Proceedings of the Office of Museum Programs' "Children in Museums" International Symposia*. A revised and updated edition of *Museum Studies Programs in the United States and Abroad* will be published with the cooperation of the International Council of Museums in 1984.

### *Office of the Registrar*

This year saw the culmination of a long period of policy formulation and final approval of collections management policies for all Smithsonian museums. However, since policies of all types must be updated regularly to reflect changes in circumstances, the mere existence of collections management policies does not mean termination of this effort. It means that policy documents must be reviewed regularly and revised as necessary. The Office has been assigned responsibility for conducting such reviews and also for monitoring compliance with existing policies.

The shift from implementation to updating activity also applies to inventory, which is an integral part of collections management. Having completed its initial baseline inventory effort last fiscal year, the Institution has moved from implementation to perpetual maintenance in that area as well. In a sense, this implies a return to the regular practices of accessioning, cataloguing, and deaccessioning which existed prior to the start of the baseline inventory effort in 1978. As in the past, the purpose of perpetual maintenance of collection records was to insure that any item could be either located or accounted for upon demand. However, the requirements now have been tightened. Whereas specific time limits were not usually placed on responses to accountability demands, now museums must be able to locate or account for an item within specified periods. One of the Office's current responsibilities is to solicit plans from the various collecting bureaus for complying with the new requirements.

The activities of the Office, though peaking as a result of these milestone accomplishments by the Institution, nevertheless continued to follow patterns already established. Coordinating the affairs of the Registrarial Council continued to occupy much of the Office's attention and this year featured a concerted effort to correct a long-standing need for security back-up of vital collection accountability information, this time through concentration on more modern photographic and electronic techniques.

The annual workshop on registration methods was offered again, and its presentation on the formulation of collections management policies was included as a regular feature of the workshop on management of collections. The semiannual workshops on computerization for museum collections were updated to include material on applications of microcomputers to collections information needs.

### *Smithsonian Institution Archives*

The Smithsonian Institution Archives (SIA) is the repository of official records of historic value documenting Smithsonian activities in science, art, history, and the humanities. SIA is responsible for physical care of and intellectual access to records and proceedings of the Smithsonian. Supplementing official records in the Archives are collections of personal papers of staff members and records of professional societies associated with work of the Institution through the years. These rich and diverse holdings are essential sources for American intellectual history and development, and they are a primary data base for Institution policy and legal and administrative reference. A guide, published periodically, is widely distributed to libraries and research centers in the United States and abroad.

A new Smithsonian Archivist, William W. Moss, was appointed on December 11, 1983. Formerly the chief archivist of the John F. Kennedy Library in Boston, he brings to the position fifteen years' experience with the National Archives. A past president of the Oral History Association, he is also the Society of American Archivists' liaison with the Chinese Archives Association of the People's Republic of China.

Museum administrators and curators throughout the United States will become better acquainted with opportunities and proce-

dures for improving archives and records management through a new manual, *Museum Archives: An Introduction*, written by Deputy Archivist William A. Deiss and published by the Society of American Archivists. SIA's *Guide to the Smithsonian Archives, 1983*, was cited in May 1984 for "excellence in archival finding aids," and an award to that effect was presented by the Mid-Atlantic Regional Archives Conference. For the 1984 meeting of the Society of American Archivists in Washington, D.C., SIA coordinated and directed the publication of a new brochure, *Smithsonian Institution Archival, Manuscript, and Special Collection Resources*. It describes the holdings and operations of the Archives of American Art, the Archives Center of the National Museum of American History, the Catalog of American Portraits at the National Portrait Gallery, the Collection Archive of the Hirshhorn Museum and Sculpture Garden, the Human Studies Film Archives of the National Museum of Natural History, the National Aerospace Reference Collection of the National Air and Space Museum, the National Anthropological Archives of the National Museum of Natural History, the Office of Printing and Photographic Services, the Office of Research Support of the National Museum of American Art, the Smithsonian Institution Archives, and the Smithsonian Institution Libraries. The brochure and a booth with photographic displays and catalogues of these eleven centers were designed and developed under the direction of Associate Archivist Alan Bain with contributions from staff members of all eleven offices.

#### NEW PROGRAM DEVELOPMENTS

Three new projects were begun by SIA during fiscal year 1984. In cooperation with the Office of Information Resource Management and Smithsonian Institution Libraries, Associate Archivist Richard V. Szary developed and coordinated plans and procedures for the application of the Smithsonian Institution Bibliographic Information System (SIBIS) to the Smithsonian's archives and manuscript collections. Upon completion of the project in 1986, researchers will be able to get on-line automated information about principal archives and manuscript collections throughout the Institution. Implementation of SIBIS for archives should make possible future sharing of basic information with distant research centers through the Research Libraries Group.

A second major project, to survey and collect descriptive data on photographic collections throughout the Smithsonian, was be-

gun in March 1984. The project, expected to take a minimum of two years for the more than ten million images estimated to be at the Smithsonian, will make this information available on a par with manuscript and archives information through the SIBIS network. A printed "finders' guide" to still photographic resources of the Smithsonian Institution is also planned as a project product.

A parallel project has been started to survey and gather data on collections of scientific illustrations and drawings in the National Museum of Natural History. In addition to gathering basic descriptive information on location, contents, and conditions, consultations are being held with scientists and illustrators to develop criteria for appraising the scientific, artistic, and historical value of the collections.

These three projects, when completed, will go far toward fulfilling a goal expressed in *Smithsonian Year* for 1969, which called for a "central information bank on manuscript and photographic materials in the Smithsonian" and a "computerized information-retrieval system."

#### BASIC ARCHIVAL PROGRAM

The basic archival program promotes and facilitates systematic and continuing identification, appraisal, and appropriate disposition of official records of the Institution generated and assembled by offices throughout the Smithsonian. The basic archival program also includes acquisition of professional career files of principal staff members.

In 1984, SIA developed general disposition schedules for six major classes of Smithsonian records. Offices of record, responsible for keeping master sets of each class of record, are designated in the schedules, and guidance is given on the proper disposition of redundant copies no longer needed by other offices. This is the first time that this basic records management device has been developed for application on an Institution-wide basis.

On-site records surveys and appraisals and design of specific records disposition schedules for individual offices and divisions were continued in 1984. Surveys were conducted in the Smithsonian Environmental Research Center; the departments of Vertebrate Zoology, Invertebrate Zoology, Paleobiology, and the Smithsonian Oceanographic Sorting Center of the National Museum of Natural History; the National Zoological Park; the National Portrait Gallery; the Freer Gallery of Art; the Renwick Gallery; the Office of Plant Services; *Smithsonian* magazine; and in the Ex-

hibits Division, Office of Public Affairs, and Department of Space Science and Exploration of the National Air and Space Museum.

Accessions of records of professional societies and personal papers in 1984 included records of the Chesapeake Research Consortium and the Estuarine Research Foundation, the papers of geologist Ellis L. Yochelson, historian Margaret B. Klaphor, and astrophysicist Riccardo Giacconi. Also of particular interest was the accession of a "Book of Dates" compiled by Elliott Coues, honorary head of the Department of Mammals, 1880-83, meticulously detailing world and national events that occurred throughout his life and family history.

Security preservation microfilming of deteriorating and vital records continued in 1984, with sixty-three thousand images put on microfilm. Notable among these were the specimen and accession record catalogues of the Cooper-Hewitt Museum; outgoing letterpress correspondence of Secretary Samuel P. Langley, 1877-1907; and outgoing letterpress correspondence of directors of the National Zoological Park, 1889-1927.

#### ORAL HISTORY

Oral history interviewing with significant Smithsonian figures continued in fiscal year 1984, and interviews completed and transcribed during the year brought the collection total to more than two hundred hours of recording accompanied by more than thirty-eight hundred pages of typewritten transcript. A significant by-product of the oral history project in 1984 was the scripting of narrations for films of Smithsonian expeditions to Panama, based on the recollections of Watson M. Perrygo, late taxidermist, field collector, and exhibits specialist of the Smithsonian. Assistance and advice were provided to other Smithsonian bureaus, notably to the Archives Center of the National Museum of American History and to the National Gallery of Art, on the initiation of new oral history projects. Plans are underway to develop a videotaping capability to augment the present audiotaping mode of recording employed by the oral history project.

#### CONFERENCES AND SEMINARS

Smithsonian Archives presented eight lectures in 1984 based on research in progress using the Archives. Topics included "Objectivity and Bias in Science: The Controversies over Phenetics and Cladistics," by David L. Hull of the University of Wisconsin at

Milwaukee, "Artistic Sources for John Abbot's Watercolor Drawings of American Birds," by Marcus B. Simpson of the Duke University School of Medicine, and "Predator Control or Predator Extermination: Attitudes and Policy, 1880-1980," by Thomas R. Dunlap of Virginia Polytechnic Institute and State University. SIA's historian, Pamela M. Henson, cohosted the 1984 Joint Atlantic Seminar in the History of Biology, held on April 13-14 in the Presidential Reception Suite of the American History Building.

#### REFERENCE SERVICE

More than fourteen hundred research inquiries were directed to the SIA and more than sixteen thousand reference service transactions were accomplished by SIA during fiscal year 1984, a 25 percent increase over 1983. Previous research using Smithsonian Archives sources resulted in a number of publications during 1984, among them Edward P. Alexander's *Museum Masters, Their Museums and Their Influence* (Nashville: American Association for State and Local History, 1983), Kenneth Hafertepe's *America's Castle: The Evolution of the Smithsonian Building and Its Institution, 1840-1878* (Washington, D.C.: Smithsonian Institution Press, 1984), and Gerald Killan's *David Boyle: From Artisan to Archaeologist* (Toronto: University of Toronto Press, 1983). In 1984 several researchers concentrated their studies on materials relating to the U.S. Exploring Expedition, 1838-42 (the Wilkes Expedition), some of which will be used in a major exhibition on that expedition at the National Museum of Natural History in 1985. Other topics of note included North American Arctic exploration, 1818-20, and the employment of science in that exploration, a biography of Jeffries Wyman, the early history of the museum movement in the United States, 1773-1870, and a biography of N. Gist Gee, including comparisons of biological typologies employed by American and Chinese scientists. Research was also done on the history of the Natural History Building of the Smithsonian, in preparation for the seventy-fifth anniversary in 1986 of its completion.

### *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-1960s Secretary Ripley recognized the Smithsonian's need for orderly, speedy access to information and organized most quasi-independent library units and collections into an institution-wide system—the Smithsonian Institution Libraries (SIL)—under the leadership of one director.

The SIL is a member of the American Association of Research Libraries and is organized on the model common in major North American universities, effecting the economies of centralized administration, collections processing, and systems planning. In 1984, branches of the SIL operated in thirty-five locations, including the Washington, D.C., area, New York City, the Republic of Panama, and Cambridge, Massachusetts. To meet growing research needs, a new SIL branch opened at the Museum Support Center in Silver Hill, Maryland, in October 1983 and plans are being formulated to establish a new branch in the Office of Horticulture.

The libraries at the Smithsonian Marine Station at Link Port, 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 20 percent of the Institution's library expenditures—are not part of SIL organizationally, and are discussed elsewhere. However, the SIL assists these libraries in many ways and devotes approximately 5 percent of its budget to their direct support.

The SIL is organized in three operational divisions: *Bibliographic Systems*, concerned with standard descriptions and automated control of all SIL collections; *Collections Management*, responsible for collection development policies, budgeting and selection for acquisitions, 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. Each division reports to a manager who is a member of the SIL executive staff. The SIL, led by the director and associate director, is also assisted by staff for planning and administration and for publications.

#### RESOURCES

The SIL is financed chiefly from the federal budget granted by Congress; in fiscal year 1984 these federal monies were about \$3,678,000, or 93 percent of SIL funding. The remaining 7 percent, or \$290,000, came from Smithsonian Institution trust funds. The SIL budgets represent 2 percent of all Smithsonian expenditures, federal and trust.



During fiscal year 1984, the Libraries received a grant of \$300,000 in special foreign currencies from the Office of Fellowships and Grants to support its Translation Publishing Program. The *SL* also obtained two grants from the Atherton Seidell Endowment Fund: one of \$31,500 for the retrospective conversion of library records and the second of \$12,500 for the purchase of scientific serials on microfilm. The Women's Committee provided a grant of \$3,000 to assist with cataloguing manuscripts in the Dibner collection and \$6,000 was donated by the Dibner Fund, Inc., of Norwalk, Connecticut, to assist with the publication of a guide to the manuscripts in that collection. In addition, \$45,000 was allocated from trust funds for the purchase of the Echols collection.

As part of the Libraries' concern with future needs, the *SL* engaged the New York City firm of Mitchell-Giurgola Architects to begin studies of *SL*'s requirements for an enhanced research library by the year 2000 and of models for an ideal branch library. On the issue of preservation needs in the Libraries, Pamela W. Darling, Special Consultant to the Library of Congress National Preservation Program, reviewed the condition of the Libraries' general collections. John Thomas, a consultant for the Office of Protection Services, produced a security management survey on physical security in the *SL*.

Dr. Margaret S. Child, Manager of *SL*'s Research Services, began serving as consultant to the Council on Library Resources in May 1984 to assist in developing a national strategy for the preservation of documentary resources. Dr. Robert Maloy, Director of the *SL*, spoke on "The Book, Computers, and Futures for Humans" at a seminar on "Computers and Human Learning" in Baird Auditorium, in December 1983. Silvio A. Bedini presented the keynote address at the annual convention of the American Congress of Surveyors and Society of Photogrammetry in September 1983. Mr. Bedini also was instrumental in preparing for the exhibition "The Naming of America," which opened in the Museum of American History in October 1983. Dr. Enayateur Rahim, another member of the *SL* staff, is currently on leave of absence to work on a handbook, *The Smithsonian Focus in India, 1985*. In the first months of 1984, Phyllis Meltzer conducted research and compiled material which will be used for a history of the *SL*. Jean Chandler Smith was the Libraries' Research Associate in 1984. In the summer of 1984, the *SL* welcomed Dr. Ivan Rebernik of the Vatican Library School, who came as a Visiting Professional to observe the admin-

istration of an automated library. The *SIL* also had ten interns and participated in the Stay-in-School employment project.

The *SIL* was authorized ninety-eight work years in 1984. In addition to federally funded positions, the *SIL* supports nine employees with Smithsonian trust funds. Strenuous recruitment and increased involvement in minority recruiting resulted in improved staffing in both the branches and centralized services.

The ability of the *SIL* to provide a basic level of service and also to initiate and continue special projects is due in large measure to the dedication and constant, hard work of the *SIL* staff and the forty-eight *SIL* volunteers.

#### *BIBLIOGRAPHIC SYSTEMS DIVISION*

In addition to continuing to provide bibliographic services to the Institution, the Bibliographic Systems Division has devoted time this year to preparations for and the implementation of an integrated automated library system for all library functions. In the autumn of 1983 after several years of planning, the *SIL* selected a system provided by *GEAC Computers International*, an international library automation company. Shortly before the vendor was chosen, plans for a wider application of the automated system were made in cooperation with other bureaus of the Institution and the system evolved into the Smithsonian Institution Bibliographic Information System (*SIBIS*). The *SIBIS* system offers an automated authority control, the design of which was pioneered by *SIL* staff working with the staff of other major research libraries who are *GEAC* customers. The development included the design of standards, displays, and formats for a fully automated authority control of name, subject, and series headings in the bibliographic records.

The automated library system began to be installed in stages. Thomas Garnett, a systems administrator, joined the staff when the implementation process began. The initial step was to create the *SIL* data base by loading into the system records which already existed in a machine-readable format. Additionally, efforts continued to convert those records which had been kept on traditional catalogue cards. These processes required revisions of *SIL* standards and procedures for the efficient operation of the new system. All Bibliographic Systems staff has been involved in in-depth analyzing of the existing manual procedures and efforts to translate them into the automated system. Extensive testing and revision of the *SIBIS* system consumed hours of staff time and many problems relating to loading older data into the system have now been re-

solved. These efforts have resulted in an updated work flow and a new procedure manual. Members of the *SIL* staff were trained to use those modules which they will be using in their work.

On-line cataloguing, functional in the fall of 1984, continues to be linked with a national bibliographic utility, Online Computer Library Center (*oclc*), and is now also used for direct data input and manipulation.

Since the automated library system will not be fully effective until all *SIL* records are included in the data base, manual records are converted on a continuing schedule as funding permits. This year it was possible to convert the Cooper-Hewitt Museum branch library's records as well as the records of older serials, the latter conversion accomplished with the aid of a grant from the Atherton Seidell Endowment Fund. For many titles, the conversion includes changing the classification from the Dewey decimal system to that of the Library of Congress system, a process that has required extensive work in record changing and labeling. Future plans include reshelving the affected works, a move which will bring the collections into proper sequence as a convenience to users.

With the assistance of grants from the Dibner Fund and the Women's Committee, 1,612 manuscripts were catalogued, input into *oclc*, and indexed for a forthcoming illustrated publication.

The indexing of trade literature continues, with the index added to *SIL*'s data base on *SIBIS*. The collections of the W. Atlee Burpee and the Warshaw companies are among the trade catalogues that have been indexed and protected in acid-neutral covers. Most of the work is performed by *SIL* volunteers.

The productivity of the division continues to increase, allowing more time for *SIL* staff to begin to process previously uncatalogued collections.

The on-line public access catalogue, accessible from terminals placed in all *SIL* locations, became available in the fall of 1984.

The beginning of fiscal year 1985 will mark the implementation of the fully automated acquisitions system. In preparation for this change, *SIL* staff conducted thorough studies of existing procedures and systems, placing particular emphasis upon the areas of financial controls and management reporting from the acquisitions system.

#### *COLLECTIONS MANAGEMENT DIVISION*

A change in leadership, substantial increases in specialized collections, continued emphasis on collections security, and exploration

#39 SMITHSONIAN INSTITUTION - GEAC LIBRARY SYSTEM - AUTHOR SEARCH

AUTHOR: Curtis, Edward S., 1868-1952.

TITLE: The North American Indian [prospectus] : being a series of volumes picturing and describing the Indians of the United States, and Alaska

INPRINT: [Seattle, Wash.] : E. S. Curtis ; [Cambridge, Mass. : The University Press], 1907.

PHYSICAL FEATURES: 17 p. : port. ; 29 cm.

NOTES: Prospectus for the twenty volume set published from 1907-1938.

OTHER AUTHORS, ETC: Hodge, Frederick Webb, 1864- \* Roosevelt, Theodore, 1858-1919. \* Hargan, John Pierpont, 1837-1913.

SUBJECTS: Indians of North America. \* Indians of North America -- Languages.

BNF - see locations and call numbers

IND - see list of headings

DOC - see previous citation

CIT - return to your citation list

FOR - see next citation in list

CNT - begin a new search

Enter code:

Then press SEND

Terminal screen of the Smithsonian Institution Libraries' automated library system. Processing on the system began on June 20, 1984, and terminals were soon installed in Central Reference and some of the branch libraries.

of new preservation technologies were highlights of a busy year in the Collections Management Division. Jack Goodwin, division manager and twenty-five-year employee of the SII, retired in October 1983. The position was reorganized and, in April 1984, Nancy E. Gwinn joined the staff as Assistant Director for Collections Management. Ms. Gwinn previously served as Associate Director for Program Coordination of the Research Libraries Group (RLG) of Stanford, California, where she was responsible for developing multi-institutional, cooperative programs in collection development and preservation.

The Institution purchased three collections for the libraries, adding richness and depth in several areas. The first was a private collection that had been assembled by the late Professor John Echols, a distinguished linguist, lexicographer, and bibliographer at Cornell University. Nearly half of the material in this Southeast Asian collection is Indonesian and the materials in this purchase will support programs of the new Smithsonian Center for African, Near Eastern, and Asian Cultures, now under construction.

The second collection, purchased for the SII by the National Air and Space Museum, consists of records pertaining to French aeronautical history which were assembled by a Frenchman, Georges Naudet, who died in 1983.

Finally, the James Smithson Society provided funds through the Office of Horticulture for a collection of 158 books illustrating the history of nineteenth-century landscape gardening. These volumes were published between 1799 and 1938.

Several items of note appear among the gifts and purchases for the SII Special Collections branch. Secretary Ripley donated a copy of John Withering's *The Orders, Lawes and Ancient Customes of Swanns* (London 1631), a rare work describing the marking and management of swans on the Thames. A private fund supported the purchase of Galileo Galilei's *Trattato della Sfera* (Rome 1656), a posthumous edition of Galileo's lectures in Padua.

Trust Fund purchases included rare books on the topics of mathematics and entomology, and on Newton's discoveries. J. Loir's *Théorie du Tissages des Étoffes de Soie* may be the only complete copy in the United States of this monumental five-volume set of design charts and swatches from one of the traditional textile centers of the world. Leonardo da Vinci's studies of optics is the central theme of G. B. Venturi's *Essai sur Les Ouvrages Phisico-Mathématiques de Léonardo da Vinci* (Paris 1797).

As the year drew to a close, the chiefs of the fourteen *SIL* branches began to develop new collection policies.

The *SIL* Book Conservation Laboratory moved into its seventh year of work to restore valuable but deteriorating materials in *SIL* collections. By the third quarter the conservators had treated nearly 250 rare volumes and had constructed over 1,800 protective enclosures and boxes. The laboratory also published and distributed a handsome brown and yellow poster outlining emergency water-damage procedures, a cautionary step taken in reaction to several minor floods in the Libraries. A professional visitor, Anthony Zammit, conservator with the State Library of South Australia, completed a two-month internship under the guidance of Johannes Hyltoft, *SIL*'s Chief Conservator.

Preservation of library materials involves numerous techniques, ranging from full restoration of bound volumes to rescue of a book's intellectual content through microfilming or photocopying. In June, the *SIL* formed an Optical Disk Working Group to explore the possibility of using this new technology. The method under study, which combines storage on optical digital disk and access through high-resolution terminals and printers, has potential for increasing access to library materials as well as preserving their contents.

#### *RESEARCH SERVICES DIVISION*

The Research Services Division of the *SIL* provides reference support to Smithsonian scientists, curators, and other staff as well as to a broad range of users from outside the Institution. The division is organized in fourteen branches dispersed over thirty-five separate locations around the Mall and throughout the Washington, D.C., area, and in New York City, Panama, and Cambridge, Massachusetts.

The division continued to expand its provision of core services, such as on-line searching of bibliographic data bases, the preparation of special-subject bibliographies, and tracking down in repositories throughout this country and abroad documentation needed by its patrons. Communication and the rapid dissemination of information was facilitated by the installation of telefacsimile machines in the branch libraries of the Museum of Natural History, the Museum of American History, and the Museum Support Center. The installation of an IBM PC at the *STR1* branch library has made it possible to search *DIALOG* and other on-line bibliographic data bases in the United States.

One highlight of the year was a massive effort to eliminate the backlog of overdue loans from the Library of Congress. As of mid-August 1984, only forty books remained outstanding on the current list of overdue volumes, and the backlog of some two thousand old loans, some dating back to the 1960s, had been reduced by half, exclusive of Smithsonian Deposit volumes.

A review of the activities of the division during the past year underlined the increasingly prominent role which several SII branches are coming to play as national resources in their respective fields. The branch at the Museum of African Art distributes its monthly acquisitions list to about 170 libraries in this country as well as to eighty abroad, including libraries located in Eastern Europe, Africa, and Australia. The branch librarian, Janet Stanley, completed for publication the manuscript of *African Art: A Bibliographic Guide*, received the published version of an earlier bibliography, *Ife, the Holy City of the Yoruba*, prepared in collaboration with Richard Olaniyan, and wrote four articles and three reviews. In addition, she has been serving as the consultant on African Art terminology to the Getty Trust's Art and Architecture Thesaurus Project. The Trust has made two grants to the SII during the past year to cover the costs of Ms. Stanley's participation in that project.

The librarian at the National Zoological Park branch library, Kay Kenyon, continued her efforts to organize the librarians of zoos throughout the country. She led roundtable discussions at the annual meeting of the American Association of Zoological Parks and Aquariums and continued to write and edit issues of *Library News for Zoos and Aquariums* which now has a mailing list of over 170 interested readers throughout the United States, Canada, and abroad. She also published an article on "Zoological Libraries" in *Sci-Tech News* and produced a bibliography, "Why Zoos?" which commanded a wide readership.

The Museum Reference Center (MRC) serves as the primary source of information about every aspect of museum administration for museum professionals, researchers, and students. Five hundred visitors from outside the Smithsonian used the Center's unique collections and another 1,300 inquiries were received by mail and telephone from around the world. Forty-eight foreign countries were represented in these visits and queries.

The vertical files of the MRC branch library are the heart of the Center's resource materials. The collection was greatly enriched by the addition of a profusion of educational materials, brochures, programs, and announcements sent in response to a request from

Paul Perrot, former Assistant Secretary of Museum Programs, to thousands of museums throughout the country. In addition to overseeing the organization of this flood of material and dealing with the constant heavy reference use of the Center, its librarian, Catherine Scott, aided by a half-time technician, Edward Johnson, and three loyal volunteers, Renata Rutledge, Carolyn Shugars, and Barbara Bowen, compiled eight new bibliographies and revised and updated ten others. Finally, the MRC branch launched a quarterly list of new acquisitions as a service for museum professionals within the Smithsonian and for those outside who use the Center.

The Museum Support Center (MSC) branch library which supports the Institution's Conservation Analytical Laboratory is also becoming more well known nationally and internationally as a source of information for specialists. Although its constituency has a more restricted field of specialization than some other branches, the MSC branch received seventy-five mail and telephone inquiries on conservation issues from scientists outside the Institution, a quarter of them from overseas. Of the two dozen on-site researchers who visited the library, a third were foreign visitors. The staff of the MSC branch conducted detailed, in-depth literature searches and produced reading lists on the topics in question for all these inquiries. The appointment of the MSC branch librarian, Karen Preslock, as publications editor of the *Newsletter* of the American Institute for Conservation of Historic and Artistic Works was an acknowledgement of the growing role of the MSC branch in supporting research in conservation outside as well as within the Smithsonian.

#### PUBLIC PROGRAMS

The SIL supports a number of scholarly outreach programs. During 1984 these included seminars and lectures, exhibitions, and publications.

The SIL Seminars and Lectures Series opened its 1984 program on November 1, 1983, with a seminar on "Bibliography: Its Use, Abuse and Future." Speakers from the National Endowment for the Humanities, the Museum of Natural History, the National Air and Space Museum, and Lehigh University were featured in a panel discussion on the changing role of bibliography in scholarship.

The Research Libraries and New Technologies Annual Lecture was held on January 25, 1984. Ellen Hahn of the Library of Congress Optical Disk Pilot Program and Dana Bell of the National



Air and Space Museum Aviation History Archival Disks Management Office spoke on "Optical Disk Technology and Its Research Applications."

A third program in the Seminars and Lectures Series, "SIL Collections and Preservation: Can We Save the Nineteenth Century?" was held on September 25, 1984, in the main auditorium of the Hirshhorn Museum and Sculpture Garden. A panel moderated by Nancy E. Gwinn, SIL Assistant Director for Collections Management, featured as speakers Pamela W. Darling, Special Consultant to the Library of Congress National Preservation Program, Carolyn Clark Morrow, Conservation Librarian of Southern Illinois University and Project Director of the Midwest Cooperative Conservation Program, and Dr. Margaret S. Child, SIL Assistant Director for Research Services and Consultant to the Council on Library Resources.

The SIL held an Open House in several of its branches on June 11, 1984, for members of the American Association of Museums who were in town for their annual meeting.

Of the seven SIL exhibitions this year, the five held in the Dibner Library were: "History of Pharmacy, From the Fifteenth to the Nineteenth Century: Sources from the Squibb Deposit"; "Donor Exhibition: Gifts to the Smithsonian Institution Libraries, 1982"; "Binding: Styles and Conservation Practices"; "Sources for the History of Biology: An Exhibit"; and "Astronomy: Men and Letters." The National Air and Space Museum branch presented an exhibition on "Naval Aviation" in the spring of 1984 and the National Zoological Park branch featured "Animals in Color Plates: G. H. von Schubert's *Naturgeschichte des Thierreichs* (1897)" through 1984.

Under the Publications Program, the SIL announced a new cycle in its Translation Publishing Program in June 1984. This program to translate and publish scholarly works of enduring value was made possible by a SRCR grant of \$300,000. The Libraries solicited from departments throughout the Institution proposals which will be evaluated by a Translation Publishing Review Committee. Members were chosen from nominations submitted by the Assistant Secretaries for Science and for History and Art.

The SIL Publications Program also continued to administer the operation of the translation-publishing program which began in 1959. Publications completed in fiscal year 1984 include N. N. Tsvelev's *Grasses of the Soviet Union* (2 volumes, 1983); A. I. Tolmachev's *The Arctic Ocean and Its Coast in the Cenozoic Era*

(1982); and G. A. Mchedlidze's *Main Features of Paleobiological Features of Cetacea* (1982). Further, four volumes of completed translations were received by the SIL for technical editing prior to final editing for publication.

The SIL appointed Dr. Nancy L. Matthews as its Publications Specialist in May 1984. Dr. Matthews has worked with two documentary publishing projects and has taught at local universities.

SIL publications in fiscal year 1984 included the *The Aerospace Periodical Index 1973-1982*, Smithsonian Institution Libraries Research Guide Number 3 (G. K. Hall, 1983), compiled by the staff of the National Air and Space Museum branch library. A library guide brochure for the new Museum Support Center branch was published, as was a *Loan Policy Brochure*, the latter designed to provide information to users on the SIL's uniform loan policies. A catalogue for the Donor Exhibition was also published.

#### GENERAL ADMINISTRATION

The Planning and Administration Office (PAO) was reorganized in June, and Mary A. Rosenfeld was appointed PAO Manager in August. Ms. Rosenfeld also held the responsibility for the oversight of renovations which began in Central Reference, in acquisitions and binding, and in supply services. The first phase of the planned renovation required the temporary storage of nearly 40,000 volumes in a hall loaned by the Museum of Natural History. The books and journals placed there will remain fully accessible to scholars. Future plans include a space reorganization which will place many centralized functions of the SIL in one section of the Natural History Building and will more than double the capacity of the Natural History branch library.

The PAO provides support for all SIL programs and units through fiscal monitoring, management of supply services, personnel assistance, provision of travel and training information, and system-wide delivery. New adjustments this year included streamlined procedures and the development of specialized functions among staff members.

#### *Smithsonian Institution Traveling Exhibition Service*

The August 11, 1984, opening of *Treasures from the Smithsonian Institution* at the Edinburgh International Festival in Scotland capped an unusually productive year for the Smithsonian Institu-



The Smithsonian Institution Traveling Exhibition Service's *The Art of Cameroon* began its tour at the Evans Gallery, National Museum of Natural History, in February 1984. Featured in this photograph in the foreground is a memorial grave figure, the only freestanding life-size beaded figure known from Bamum.

tion Traveling Exhibition Service (SITES). Thirty new exhibitions opened, among them four of the most complex exhibitions ever organized by SITES: *The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections*; *The Art of Cameroon*; *Yesterday's Tomorrows: Past Visions of the American Future*; and *Treasures from the Smithsonian Institution*.

SITES was asked to organize the Smithsonian's special exhibition for the Edinburgh Festival and decided on the theme presented in the Smithsonian Institution Press's magnificent book *Treasures from the Smithsonian*. SITES worked closely with numerous Smithsonian bureaus to orchestrate the exhibition and its associated events. The exhibition was the largest ever mounted by the Smithsonian for tour abroad and the first to combine materials from all of the constituent museums—260 objects in all.

The opening at the Evans Gallery in November 1983 of *The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections* marked the culmination of lengthy international negotiations with Czechoslovakia and displayed shared scholarship and resources with museum colleagues in Prague. SITES worked closely with Project Judaica and with national corporate sponsor Philip Morris Incorporated; published a major catalogue, a children's book, four exhibition posters; and collaborated with the Smithsonian Museum Shops in their development of replicas and reproductions. During its seven-week showing at the National Museum of Natural History, *The Precious Legacy* was viewed by 105,000 visitors.

*The Art of Cameroon* began its United States tour at the Evans Gallery in January 1984. This first major exhibition of works from the Cameroon grasslands was sponsored by Mobil Oil Corporation. SITES published the extensive catalogue and a brochure, and produced a 30-second television public service announcement.

*Yesterday's Tomorrows: Past Visions of the American Future* opened in August 1984 at the National Museum of American History. Jointly organized by SITES and the NMAH, the exhibition was sponsored by Champion International Corporation. SITES co-published the exhibition book with Summit Books, and invented and produced a card game—"Futurevision"—to accompany the exhibition.

With funding support from the James Smithson Society, SITES organized a special participatory exhibition, *Sculpture: Exploring 3 Dimensions*. A number of SITES exhibitions were developed jointly with other Smithsonian bureaus: with the National Museum of

American History, *In Touch: Printing and Writing for the Blind in the 19th Century*, *Marconi*, and *Building Brooklyn Bridge*; with the Renwick Gallery, *Threads*; with the Cooper-Hewitt Museum, *Matchsafes*; with the Folklife Program, *Family Folklore* and *Southeastern Potteries*; and with the National Air and Space Museum, *25 Years of Manned Space Flight*.

Other art exhibitions for fiscal year 1984 included *Master European Drawings from the Collection of the National Gallery of Ireland*; *The Biblical Paintings of J. James Tissot*; and *Edgar Chahine: La Vie Parisienne*. Science and natural history exhibitions included *A Flowering of Science*; *Native Harvests*; *People of the Forest*; *Early Flight*; *South of Winter*; and *Unfamiliar Fauna of the Open Sea*.

Two SITES exhibitions toured exclusively overseas. *American Porcelain* was shown in four countries in the Far East and also in India. *Threads* was shown in five countries in the Middle East. Both tours were organized jointly by the Renwick Gallery, SITES, and the U.S. Information Agency.

Among future major exhibitions in various stages of development were *Hollywood: Legend and Reality*, for which SITES received substantial corporate support from Time, Inc.; *From Ebla to Damascus*, a collection of archeological treasures from Syria; and *Renaissance Bronzes from the Kunsthistorische Museum, Vienna*, which will begin its United States tour in 1986 at the National Gallery of Art.

TOURS FOR PERIOD OCTOBER 1, 1983, THROUGH  
SEPTEMBER 30, 1984

Number of bookings .....	419
Number of states served (including Washington, D.C.) .....	47
Estimated audience .....	7.5 million
Exhibitions listed in last <i>Update</i> (catalogue of SITES exhibitions) .....	117
Exhibitions produced for tour during the year ....	31

EXHIBITIONS BEGINNING TOURS OCTOBER 1, 1983, THROUGH  
SEPTEMBER 30, 1984

- An Age of Gold: Three Centuries of Paintings from Old Ecuador*
- America's City Halls*
- The Art of Cameroon*

*Arte/Objeto: Sculpture from the Tane Silversmiths Collection*  
*The Artist and the Space Shuttle*  
*Beaumont Newhall: A Retrospective*  
*The Biblical Paintings of J. James Tissot*  
*Building Brooklyn Bridge*  
*Early Flight*  
*Edgar Chahine: La Vie Parisienne*  
*Family Folklore*  
*A Flowering of Science: Plants from Captain Cook's Voyage, 1768-71*  
*In Touch: Printing and Writing for the Blind in the 19th Century*  
*Jacquard Textiles*  
*The Long Road Up the Hill: Blacks in Congress, 1870-1983*  
*Marconi*  
*Master European Drawings from the Collection of the National Gallery of Ireland*  
*Matchesafes: Striking Designs*  
*Native Harvests: Plants in American Indian Life*  
*People of the Forest: Photographs of the Chiapas Maya by Gertrude Blom*  
*The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections*  
*Radiance and Virtue: The R. Norris Shreve Collection of Chinese Jades*  
*Sculpture: Exploring 3 Dimensions*  
*South of Winter: Scenes from Aransas Wildlife Refuge*  
*Threads: Seven American Artists and Their Miniature Textile Pictures*  
*Treasures from the Smithsonian Institution*  
*25 Years of Manned Space Flight*  
*Unfamiliar Fauna of the Open Sea*  
*World Print IV*  
*Yesterday's Tomorrows: Past Visions of the American Future*

PAPER PANEL EXHIBITION PRODUCED FOR PURCHASE

*Getting the Picture: The Growth of Television in America*



Dolly Spencer, an Inupiaq Eskimo dollmaker from Homer, Alaska, displays three of her dolls at the 1984 Festival of American Folklife. She often fashions her dolls after people she admires.



Office of Telecommunications producer Ann Carroll and cameraman John Hiller capture a behind-the-scenes moment in the National Museum of Natural History's Discovery Room for "Here at the Smithsonian . . ." the office's series of short features for television.



## PUBLIC SERVICE

RALPH C. RINZLER,  
ASSISTANT SECRETARY FOR PUBLIC SERVICE

### *International Center*

Secretary Ripley established the International Center as the organizing unit of the Quadrangle in October 1983. Throughout the year, numerous individuals within and outside the Institution were consulted on both the philosophy behind the International Center and the possibility of undertaking collaborative research projects involving Smithsonian staff, other scholars and scientists, and experts from around the world. Foremost in all plans for the Center has been an interest in identifying and determining ways in which the Center may facilitate and enhance the research of Smithsonian scholars and scientists. It is anticipated that such research will lead to symposia, exhibitions, and various types of public programs which the Center will coordinate.

### *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 programs of the Office of Elementary and Secondary Education (OESE). With the conviction that it is equally 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 learn 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.

For several years OESE has offered a number of programs and publications to help teachers use museums and other community resources with their students. OESE continues to offer these services, proven successful by those who use them. *Let's Go to the Smithsonian*, a newsletter, informs local teachers of the ever-growing variety of Smithsonian services available to teachers and students. Multiple copies are sent free-of-charge to approximately twelve hundred schools in the Washington, D.C., area. *Through Looking to Learning: The Museum Adventure* serves as a guidebook for teachers to the various Smithsonian museums. Copies are sent free to all schools in the Washington metropolitan area as well as to any other schools planning a trip to Washington.

For teachers nationally, *Art to Zoo*, a free, six-page publication to promote the use of community resources, reaches approximately fifty-five thousand classrooms. *The Museum Idea*, a slide/tape curriculum kit, helps fifth- and sixth-graders learn what museums are and what the students can do themselves to make a classroom museum. *Of Kayaks and Ullus*, a curriculum kit for high school students developed in conjunction with the Department of Anthropology, teaches young people how to use primary and secondary research materials while at the same time learning about the culture of the Bering Sea Eskimo of one hundred years ago. These materials, all giving students the opportunity for first-hand learning, have proven very popular. For example, one teacher commented about her use of *Of Kayaks and Ullus*, "It can be quite difficult to teach students to form good research habits (and to steer them away from copying out of encyclopedias!), but I think the organization and activities of this unit went a long way toward building such skills."

Because of the popularity of these materials, OESE is now preparing two new curriculum kits for teachers to use with students in grades five and six—one on using museums to teach critical and creative thinking skills and the other on using objects to teach writing. Similarly, in fiscal year 1984 OESE in collaboration with the Office of Public Affairs developed a new publication to be piloted in 1985: *Smithsonian Journeys* is designed to bring the Institution,



Stationed in the Smithsonian Institution Greenhouse, Melissa Pilant learned about careers in horticulture during the summer internship program offered by the Office of Elementary and Secondary Education. (Photograph by Jon Dicus)

its work, and its excitement to junior high school students across the United States.

Special events during the year introduce school teachers and administrators to the educational possibilities of museums. For example, in December a conference on "Computers and Human Learning" was attended by more than three hundred school administrators. Cosponsored by the Office of Symposia and Seminars, this event explored the impact of computer technology on education. A videotape based on conference materials is now available to help schools around the country better address ways of making computers useful in the classroom. Also in December OESE again conducted a Holiday Reception for teachers, where participants learned about the origin and meaning of the Afro-American harvest celebration, Kwanzaa, and about behind-the-scenes planning for the Institution's annual *Trees of Christmas* exhibition. Then in April a special presentation in the Discovery Theater showed how the dramatic arts can be used to teach many disciplines, including science and social studies.

From June 25 through August 3, a series of five-day seminars provided professional training for Washington, D.C., area educators. Close to two hundred teachers chose from one- and two-week courses on subjects such as "19th-Century Architecture," "Rocks, Fossils, and Geologic Time," and "Insects in the Classroom." In addition, a three-credit graduate course on "Using Museums to Teach Writing" was offered to teachers from across the nation. Given in cooperation with the University of Virginia, this seminar brought teachers from as far away as Florida and Oregon to the Smithsonian to develop a variety of writing assignments that they could use with their own students. As a final project, the teachers were required to develop curriculum units based on the resources of their own communities. Comments from teachers attest to the value of OESE's workshops, both local and national; as one of the participants wrote, the national seminar "has changed my life. I was considering leaving teaching because of the curriculum ruts one gets into, personally, as well as the terrible ruts created by department chairmen and administrators. Now I see that what I know instinctively about teaching writing and other things is really true. My students and I are going to have a marvelously good time learning this year!"

Because of its commitment to assist teachers in the teaching of writing, OESE this year became an affiliate member of the National Capital Area Writing Project. The project—based on the model of

the National Writing Project—is a nonprofit organization of local educational institutions committed to the cooperative sharing of resources in an effort to improve writing instruction and student writing in all subject areas and at all grade levels (kindergarten through university).

To assist school teachers and museum educators, OESE has established a Regional Workshop Program, providing Smithsonian support and assistance to communities throughout the nation. At the invitation of a community's museums, OESE will set up and help coordinate a one-day special event that will bring the community's teachers and museum people together, enabling them to find ways to work with each other productively long after the original program is over. In the first of its two pilot years, the Regional Workshop Program held two events, serving a total of over eight hundred teachers—one in Tidewater Virginia (in October 1983) and the second in New Orleans, Louisiana (in March 1984). Regional Workshop programs have been scheduled for additional communities for fiscal year 1985: Oakland, California (in November 1984), Charleston, South Carolina (in November 1984), and Oak Ridge, Tennessee (in March 1985).

In addition, OESE continued its progress in making Smithsonian programs accessible to disabled visitors. The Office's Special Education Program maintained such services as providing sign language and oral interpreters for special events and regular program offerings, as well as giving sign language courses and "disability awareness" sessions to Smithsonian staff and volunteers.

In addition, the program published a curriculum kit, *Museums as Storytellers*. Funded by a grant from the Women's Committee of the Smithsonian Associates, the kit will help teachers of hearing or deaf youngsters improve their students' language skills.

The program also held two special events to assist disabled people. "To Photograph Is To See," cosponsored with the Polaroid Corporation, introduced visually impaired persons to photography as a tool for sight. As one participant wrote, "The presentations were interesting, the workshop materials useful and well done, and the experience was a very positive one. It's always nice to participate in a program which emphasizes what visually impaired people CAN do, instead of CAN'T do." The other program, "Orienteering: A New Route to Travel Skills," was offered in conjunction with the National Park Service and the Administration of Developmental Disabilities of the U.S. Department of Health and Human Services. The workshop taught parents, teachers, and

school administrators how to translate skills from the sport of orienteering to provide mentally retarded individuals with an enjoyable way to find their way around Washington and the Smithsonian museums.

During the 1983-84 school year, OESE expanded its programs that bring young people to the Institution. The Office's new Career Awareness Program (CAP) worked with three District of Columbia public high schools to develop and teach a series of programs introducing minority young people to career opportunities at the Smithsonian. This school year, participants worked with staff members from the Hirshhorn Museum and Sculpture Garden, the National Museum of Natural History, and the National Museum of American History. In the museums, the students participated in a number of activities, including behind-the-scenes tours, career workshops, and special projects. The CAP is directed to ninth- and tenth-graders, because most young people at these grade levels have not yet locked themselves into the kinds of curriculum decisions that ultimately determine career options and choices. To maintain the students' interest in museum careers, the CAP follows up on its graduates, encouraging their continued planning for museum-related careers.

"Exploring the Smithsonian," a program for seventh- and eighth-grade teachers and students in the District of Columbia public schools, brought more than thirty-five hundred youngsters to specially developed, curriculum-related lessons in the Smithsonian museums. In addition, OESE's annual high school summer internship program was opened to students from all fifty states and the District of Columbia. The thirty-four interns selected to participate this summer worked under the guidance of curatorial and technical staff members in various parts of the Institution, discovering new directions for collegiate study and for possible careers. As one intern wrote, "I'm so glad that I have been able to have such an experience. It has helped me in making a definite career choice and I now see all the opportunities that are here and the many universities I will be able to attend. The program has helped me in making some major decisions that will affect my future. I loved it!"

Through participation in national and regional conferences and workshops, OESE staff members have helped expand the scope and understanding of teachers and professional museum educators. OESE staff members also helped to plan and teach seminars on museum / school relations and on museum interpretation offered by the Smithsonian's Office of Museum Programs.

## *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, an effort that entails, among other activities, the presentation of living folk traditions in the context of the national museum. Since its inception, the Office of Folklife Programs has directed its attention to the identification and study of folk traditions and to the development of methods for presenting them in a national setting to general audiences. The Office of Folklife Programs also cooperates with other Smithsonian bureaus in research and exhibit production; it publishes documentary and analytic studies; its staff undertakes both exhibition-oriented and publication-oriented research and may engage in teaching at Washington area universities.

### *FESTIVAL OF AMERICAN FOLKLIFE*

The Office of Folklife Programs planned and produced the eighteenth annual Festival of American Folklife in fiscal year 1984. The festival was held on its original site on the National Mall outside the museums of American History and Natural History. It took place over a two-week period, June 27–July 1 and July 4–8, 1984. Alaskan folklife, the folklore of America's older generation, expressive traditional culture of urban Blacks from Philadelphia, and traditional foodways were all featured at this festival.

On the occasion of Alaska's twenty-fifth anniversary of statehood, ninety representatives of the state's ethnic, regional, and occupational communities brought their music, culinary traditions, work skills, dance, crafts, and lore to the National Mall. Native Alaskan basketry and doll making, wood and ivory carving, gold mining, logging, music, and dance were among the traditions from Alaska that were presented.

"The Grand Generation: Folklore and Aging" program explored the role that older generations play in preserving and perpetuating America's traditional culture and identity. Among the traditions of the sixty participants were Hawaiian hula dancing, African-American hymns, spirituals and work songs, quilting, hide tanning, and stone carving. A Learning Center provided thematic focus for the program with photo-text panels, elders' life review projects, and an oral history collecting project.

The program on "Black Urban Expressive Culture from Philadelphia" presented performance traditions that demonstrated underlying aesthetic unities in several genres of Black American traditional cultural expression. Performances of the nearly sixty participants included tap and break dancing, collegiate stepping, street drills, blues, gospel and do-wop singing, rapping, and DJ "scratching" skills.

For the first time in the festival's history, traditional foodways were presented in a unified program with a structured approach to research in and presentations of culinary traditions in the three festival areas. Demonstrations included Alaskan fish smoking, fishing boat cookery, and uses of seaweed and sourdough; traditional ethnic recipes that have been passed down through generations, such as Armenian stuffed grape leaves and fruit leathers; and Black American cuisine, which included fried chicken, biscuits, greens, and sweet potato pie. Food concession stands located adjacent to each demonstration area sold food prepared according to participants' recipes.

The festival was cosponsored by the National Park Service, and the Smithsonian received funding support from the Music Performance Trust Funds, the American Association of Retired Persons, the Atlantic Richfield Foundation, the National Institute on Aging, the National Institutes of Health, the State of Alaska Department of Commerce and Economic Development through its Division of Tourism and the Alaska Seafood Institute, and other private and corporate donations from Alaska.

#### SPECIAL PROJECTS

In cooperation with the Smithsonian Institution Traveling Exhibition Service (SITES), the Office of Folklife Programs developed a traveling exhibition on the surviving traditional potteries in the southeastern United States entitled *Southeastern Potteries*. The research for this project was sponsored by the Office of Folklife Programs and was conducted according to a model developed in previous pottery research by the Office. The exhibition, which was mounted in the National Museum of Natural History from June 27 through August 18, was accompanied by the publication of a book, *Raised in Clay: The Southern Pottery Tradition*, by Nancy Sweezy, a researcher for the Office and guest curator for the exhibition. Smithsonian Institution Press published the book, which serves also as a catalogue for the exhibition.



Collaborative work with the American Folklife Center at the Library of Congress began in the summer of 1979 on a project to preserve more than thirty-five hundred wax-cylinder recordings principally held by the Library of Congress. These contain Native American songs and stories recorded prior to 1930. The project involved 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 historical cultural documents. The project is nearing completion with the Library's publication in fiscal year 1984 of two of the ten volumes, entitled *The Federal Cylinder Project: A Guide to Field Cylinder Collections in Federal Agencies*.

Research and programming has also reached an advanced stage for an exhibition from India depicting an individual's cycle of life, with two thousand objects and forty traditional craftsmen and performing artists. The exhibition, entitled *Aditi: A Celebration of Life*, will be mounted in the Evans Gallery of the National Museum of Natural History from June 4 to July 28, 1985.

#### RESEARCH

Research, writing, and production have continued on five monographs and accompanying films included in the Smithsonian Folklife Studies Series. This series was established in 1978 to document, through monographs and films, folkways still practiced or still within living memory in a variety of traditional cultures. Drawing on more than a decade of research accruing from fieldwork conducted for the Office's annual Festival of American Folklife, the studies are unique in that each consists of a monograph and a film, conceived to complement each other. In fiscal year 1984, the documentary film *At Laskiainen: In Palo Everyone Is a Finn* was completed. This film grew out of research for a program held at the fourteenth annual Festival of American Folklife and documents a Finnish-American midwinter festival in Palo, Minnesota.

In addition to the series, a film about the traditional craft of stone carving was completed during this past year. Entitled *The Stone Carvers*, the film had its genesis in a program organized for the 1978 and 1979 Festivals of American Folklife and was sponsored by the Washington Area Film and Video League and was produced in cooperation with the Office of Folklife Programs. The film documents stone carving as practiced by the carvers at the Washington Cathedral, some of the last remaining stone carvers in America.

## *Office of International Activities*

From the earliest years, the Smithsonian Institution has followed the spirit of James Smithson, who was quoted by Founding Secretary Joseph Henry as having said of the man of science, "The world is his country—all men, his countrymen." Particularly in the sciences, but in important ways in the arts and cultural history, the Smithsonian Institution has traditionally carried its scholarly interests to the whole world and beyond. The Office of International Activities (OIA) was established almost twenty years ago to assist all levels of Smithsonian staff in the pursuit of international interests. OIA does so by advising program managers; by maintaining liaison with the United States and foreign governments, with private institutions around the world, and with international organizations; and by providing certain passport, visa, communications, information, and reception services.

With the resignation of Assistant Secretary Perrot on January 25, 1984, OIA was transferred from Museum Programs to Public Service. This reflected the placement of responsibility for the development of the International Center, as part of the Quadrangle project, with Assistant Secretary Rinzler. For 1984, much of the energies of OIA were turned to the assistance of those members of the Smithsonian senior staff who were most concerned with the garnering of international support for the International Center, especially Secretary Ripley, Assistant Secretaries Perrot and Rinzler, and Membership and Development Director Symington.

In 1984, OIA has been compiling a profile of the Smithsonian's international activities. Preliminary data shows the Smithsonian active in 120 countries in the past two years, or something over two-thirds of the countries carried in our files. On the basis of numbers of Smithsonian contacts with these countries, our interests have in recent years been (in descending order) highest in Great Britain, Panama, West Germany, France, India, Australia, Italy, Japan, and Mexico. Subjects of Smithsonian interest have been quite diverse, but natural history dominates activities with Australia, Mexico, and Panama (site of the Smithsonian's major tropical research facility, the Smithsonian Tropical Research Institute), and astrophysics is the major interest in Italy. Other interests include art and cultural history research, exchanges of museum objects, and exchanges of scholars. Major activities in Great Britain

and West Germany were associated, respectively, with the Edinburgh Festival and the German-American Tricentennial.

In April 1984, OIA organized and coordinated, in collaboration with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the National Trust for Historic Preservation, an international conference at the Smithsonian on historic preservation, "Why Preserve the Past?" The conference featured panel participants and speakers from many countries, and included the Director-General of UNESCO. The Proceedings will be published jointly by the Smithsonian and UNESCO through the Smithsonian Institution Press.

The office arranged major revisions in the Smithsonian exchange program to include certain categories of performing arts and to permit Smithsonian sponsorship of foreign exchange visits to other museums and similar institutions when Smithsonian interests are served.

OIA services to Smithsonian bureaus during 1984 included obtaining 95 official passports, and 923 foreign visas (this latter figure including considerable travel sponsored by the Smithsonian Foreign Currency Program). OIA handled 87 foreign students and exchange visitors during the year. Also during the year, OIA performed an additional estimated 400 liaison services that included the facilitation of Smithsonian overseas research and exchanges, liaison with foreign affairs agencies, immigration problems, and the reception of foreign official visitors to the Smithsonian, for an overall total of 1,500 services of all types. This is almost double the figure for 1983.

Among the many distinguished visitors received by OIA during the year were the Dalai Lama and the President of Austria, who visited the Smithsonian and participated in Resident Associate programs on their respective cultures; and the Indonesian Minister of Culture, who signed a cooperation protocol with the Smithsonian.

### *Office of Smithsonian Symposia and Seminars*

The Smithsonian's eighth international symposium, "The Road After 1984: High Technology and Human Freedom," dominated the year for the Office of Smithsonian Symposia and Seminars.

Scheduled for December 1983 in anticipation of the Orwellian Year, the symposium's design touched on warnings of Big Brother, totalitarian techniques, mind control, doublespeak, and other of the novel's forebodings. Attention, however, centered on the acceleration in scientific advancements revolutionizing technology and communications.

Organized in cooperation with Wake Forest University on the occasion of its 150th anniversary and with the Center for the Humanities, University of Southern California, the meetings probed the overall social and political dynamics now at work in the world and attempted to identify both the blessings and the dangers inherent in our new "high tech" society. An official activity of the World Communications Year, the calendar's activities were made possible by the financial support and participation of more than twenty-five American and foreign corporations and professional associations. Nearly one hundred scholars, government officials, and business representatives donned academic dress for a traditional procession from the Castle across the Mall to the formal opening ceremony in the National Museum of Natural History. Against a musical background of the Ditchley Bells ringing from the Old Post Office tower, bagpipe peals *en marche* provided by the Washington Scottish Pipe Band, and an interlude played by the Century Brass, the Honorable J. William Fulbright, Regent Emeritus of the Smithsonian, welcomed symposium contributors, sponsors, official guests, and the public audience in Baird Auditorium. Acting Secretary Phillip S. Hughes introduced the symposium's honorary chairman, T. R. Fyvel, close friend to Orwell and author of *George Orwell: A Personal Memoir* (New York, 1982) and other distinguished participants.

Included among the four-day program segments were: "Computers and Human Learning," "Significance of 1984 as a Universal Metaphor," "American Law and the Effects of Technology on Privacy," "Loose and Tight Controls: Techniques of Governance," "Learning the Responsibilities of Citizenship in an Open Society," "Can the Mass Media Control our Thoughts?" and "Can High Technology Be Managed for Human Freedom?" Wilton S. Dillon, director of Smithsonian symposia and seminars, and Eliot D. Chapple, a pioneer in anthropological studies of business, industry, and hospitals, and former editor of *Human Organizations*, journal of the Society for Applied Anthropology, were chief architects of the project. Lewis Lapham, editor of *Harper's*, is editor of the



Clare Boothe Luce raises a point during the Smithsonian's eighth international symposium, "The Road After 1984: High Technology and Human Freedom." Looking on is T. R. Fyvel, honorary chairman of the symposium organized by the Office of Smithsonian Symposia and Seminars.

volume to be published by the Smithsonian Institution Press in 1985.

On December 29, 1983, the office received the first deposit into the Barrick W. Groom Endowment Fund established to support its interdisciplinary activities. In accepting the \$50,000 check on behalf of the Institution, Assistant Secretary for Administration John Jameson expressed sincere appreciation for Mr. Groom's long-standing contributions of time and energy, as well as for his generous financial assistance. *The Domestic Life of Thomas Jefferson* (Charlottesville, 1979)—Groom is descended from Jefferson by marriage—was presented to him in return, along with a quill pen with which to write future checks, as whimsically noted by director Wilton Dillon. Mr. Groom, who has been associated with the Smithsonian for a number of years, lives in Upperville, Virginia.

"Smithsonian's Prestige Boosts Durham Festival" headlined the May 1, 1984, *Durham Morning Herald* lead editorial. Cosponsored by the Smithsonian and the North Carolina Department of Cultural Resources, the British American Festival marked the 400th anniversary of the arrival of the first British expedition to North America, at what is now Roanoke Island, North Carolina. Celebrating the occasion with folklife programs, sports events, concerts, exhibitions, and a series of symposia held in Durham June 2 through June 16, attended by some 75,000 people, the festival also explored persisting cultural links between the United States and Great Britain. Office of Smithsonian Symposia and Seminars associate director Carla Borden represented the Institution at the project's planning meetings, identified Smithsonian scholars and others who could contribute to the development of the festival, and served as liaison between the festival staff and concerned Smithsonian bureaus. As noted by Secretary Ripley in the official program, the commemoration provided an "occasion through which we come to a deeper understanding of our evolving traditions and our shared concerns for the future."

The Edinburgh Festival of 1984 included director Dillon's chairing and speaking at several sessions of an international conference on "Art and the Human Environment," at which he drew upon earlier Smithsonian symposia related to the theme. Dillon carried the Smithsonian mace in a procession from Edinburgh's City Chamber of St. Giles's Church at a ceremony opening the Edinburgh Festival, and later met with officials of the University of Edinburgh and the University of Glasgow to discuss long-term ways and means of encouraging scholarly cooperation between the

Smithsonian and Scottish universities and research centers. Such cooperation would include research on the Scottish Enlightenment as it related to the intellectual roots of the United States Constitution and Bill of Rights, their 200th anniversary to be marked beginning in 1987. Liaison also was established with the University of Strathclyde, Glasgow, where important research is under way on artificial intelligence. Other areas of cooperation were explored, such as the centennial of the birth of James Audubon (whose folios were published in Edinburgh) and Scottish participation in future seminars on Patrick Geddes, naturalist and town planner (whose ideas have much influenced Lewis Mumford's work on urban civilization).

As part of the Festival of India, the office will present on June 21-25, 1985, an examination of "The Canvas of Culture: Rediscovery of the Past as Adaptation for the Future." This symposium will reflect concern with both natural and cultural conservation of scope corresponding to India's size and complexity, especially in relation to the Smithsonian's multifaceted activities in India ranging from the physical and natural sciences to the arts and humanities. The passing of time, migration of people, and variations in ecosystems affected by social change and developing technology have left indelible marks on traditional Indian cultures. Have some aspects been forgotten and lost entirely? Or are they latent and renewable in a contemporary context? Or are they replaced completely? And if so, in what forms? Why is this re-creation process important and to what uses are its results put? Modern India's significant historical and current experience with such "amnesia," reacquisition, and adaptation offers a rich opportunity for analysis and speculation about her future civilization and identity. Cochairing the symposium are S. Dillon Ripley, also chairman of the American Committee for the Festival of India, and Pupul Jayakar, also chairman of the Indian Advisory Committee for the Festival.

The office also regularly provides resource services to other Smithsonian bureaus and units and to outside specialists in planning symposia and seminar programs. Its educational outreach helps link the humanities and sciences through interdisciplinary activities both in Washington and elsewhere. The Secretary of the Institution awarded Carla Borden a Fluid Research grant to study the experience of European refugee scholars who came to the United States and taught at black colleges in the 1930s and 1940s, an unexplored chapter of new dimension in our history. As a pan-Institution center, the office is working closely with others on the

1985 tricentennial of the births of Bach, Handel, and Scarlatti and on further cultural exchange of foreign scholars and artists, e.g., Eduardo Marturet, prominent Venezuelan composer and orchestral conductor. Emphasis is being given to the forthcoming Bicentennial of the Constitution and Bill of Rights; the office is designing a citizenship education program culminating in 1987 in the Smithsonian's ninth international symposium tentatively titled "Our Constitutional Roots."

The office had the benefit for nearly six months of two recent college graduates who served as consultants on a range of projects: Andrew Langhoff, Tufts University, and Craig Myers, Oberlin College, before pursuing graduate work at the University of Virginia and Oxford University, respectively.

Certificates of appreciation signed by the Secretary were presented to staff members Dorothy Richardson, Carla M. Borden, and Helen F. Leavitt in recognition of service to the Institution. Director Wilton S. Dillon was awarded the "Chevalier de l'ordre des Arts et des Lettres" by the French government for personal contributions to Franco-American relations and for the office's work in bringing public attention to the Bicentennial of the Battle of Yorktown and the subsequent Peace of Paris formally ending the Revolutionary War.

### *Office of Telecommunications*

The Office of Telecommunications (otc) extends the Institution's reach nationwide and abroad by bringing the museums to people through films, radio, and television programs. During fiscal year 1984, the otc expanded its role in reaching greater audiences through involvement in new broadcast and film ventures, through the significant growth of its ongoing programs, and through services to Smithsonian bureaus.

This year, the otc broke new ground with a special four-part radio miniseries, "American Stories." Inspired, in part, by a Smithsonian book, *Celebration of American Folklife*, this miniseries features true tales and tall tales from across America. Funded by the James Smithson Society, "American Stories" was the first radio series of this magnitude produced by the office. For nearly a year, the producers traveled from Maine to California recording the



personal stories and remembrances of people they met along the way. From movie cowboy Gene Autry to the family around the corner, the stories told represent a cross section of American experiences and ideas. Production was completed in September 1984 and the programs are being made available to all radio stations throughout the country as well as to schools and libraries.

Orc's film producers were found working extensively in the field in Europe and in the Caribbean. Major shooting for *The Work of Peace*, a half-hour film which tells the story of the signing of the 1783 Treaty of Paris, occurred on location at historic settings in Paris and London. This film is a follow-up on orc's productions relating to the Bicentennial of the United States. *The Work of Peace* premiered in Washington, D.C., on June 7, 1984, and will be distributed to high schools across the country. Plans are underway for a nationwide telecast on PBS. Filming for *The Sea: A Quest For Our Future*, a one-hour documentary on the complex ecosystems of tropical coral reefs, took place throughout the Caribbean including the Virgin Islands, the Bahamas, the British Colony of Turks and Caicos, and Belize. The film focuses on research projects conducted by the Smithsonian's Marine Systems Laboratory. *The Sea: A Quest For Our Future* was completed in September 1984. It is the first hour-long film produced by the orc for PBS broadcast. We are working closely with commercial film distributors in order to market these films actively to educational and cultural institutions.

Still advancing in new directions, the orc received a \$23,000 grant from the James Smithson Society to produce a pilot program of a potential television series geared for children aged nine to twelve. Going behind the public areas of the museums, the half-hour pilot will feature Smithsonian curators, scientists, or historians sharing their areas of expertise. Based on a recent report which concludes that the electronic media are the "most important medium of informal learning today," this project has the potential to stimulate children and awaken an interest in science, art, and our heritage.

The office's ongoing programs experienced unprecedented growth during 1984. "Radio Smithsonian," the nationally broadcast 30-minute weekly radio series, added eighteen new subscribing stations to its roster, bringing the total to seventy-five radio stations throughout the country, including eight in the top ten markets. Its companion, "Smithsonian Galaxy," a series of 2<sup>1</sup>/<sub>2</sub>-minute radio features designed for commercial stations, celebrated its fifth anni-

versary on the air. This popular series continues to be broadcast on 230 stations in forty-eight states, Canada, New Zealand, and the Virgin Islands. The newest series is "Here at the Smithsonian . . ." an award-winning series of 2-minute features for television. After completing its third season, "Here at the Smithsonian . . ." boasts an impressive roster of seventy subscribing television stations here and abroad. These rapidly growing programs offer an effective and practical way of reaching millions of people.

The office's standard of excellence and its commitment to quality broadcasts and films is evident not only from the comments and responses of stations, listeners, and viewers, but also from the broadcasting and filming industries. "Radio Smithsonian" and "Smithsonian Galaxy" each clinched a Gold Screen Award for excellence in the electronic media category from the National Association of Government Communicators in May 1984. "Here at the Smithsonian . . ." received a Gold Award for excellence in the television series category from the Houston International Film Festival also in May 1984. *American Picture Palaces*, orc's 22-minute film on the "golden age" of movie theaters of the 1920s and 1930s, continued to receive major film awards during 1984, bringing the total to fourteen, including a Gold Award from the International Film and TV Festival of New York and a CINE Golden Eagle.

To strengthen the coordination and effectiveness of film and video activities within the Institution, the orc provides regular support services to all bureaus. During 1984, the orc created many productions for other units, including a film to accompany an Anacostia Neighborhood Museum's exhibition on Lou Stovall, a Smithsonian orientation film for the Visitor Information and Associates' Reception Center, an introductory film for the Museum Support Center, and a film to accompany a Smithsonian Institution Traveling Exhibition on the future.

### *Smithsonian Institution Press*

The past year has been an important one in the growth of the Smithsonian Institution Press (SIP) as a major publisher of both scholarly and popular books and records that reflect on a lasting basis the research interests, collections, and activities of the Institution. Publishing activity continues to increase in quality and



Vincent MacDonnell, Nancy Mottershaw, and Gail Grella set up the Smithsonian Institution Press display booth at the Washington Convention Center in preparation for the May 1984 American Booksellers' Association convention.

quantity as the three principal divisions of the Press meld into a unified and complementing organization.

Production during the year reached a total of 300 "jobs"—192 of these federally funded—including catalogs, journals, scholarly monographs, brochures, museum and exhibition guides, the annual report of the Institution, and miscellaneous productions. The balance of 108 works were published with nongovernment funds—books, records, newsletters, annual reports, and smaller publications. The high quality of the Press's publishing effort was evident in the sixteen awards for editorial and design excellence received during the year from six different organizations (ranging from the Blue Pencil Competition of the National Association of Government Communicators to the publications competition of the Aviation/Space Writers Association) as well as a continuing series of highly favorable book reviews in leading literary and scholarly magazines and journals.

Further evidence of the Press's continued growth in publishing and marketing important books was demonstrated by sales figures for the year. Gross sales totaled \$7.5 million compared to less than \$6 million in fiscal year 1983 and \$4 million the previous year. The most noteworthy productions were Smithsonian Books' *Treasures of the Smithsonian*, which is being reprinted after the entire first printing of 70,000 copies sold out, and the Recordings division's album *Big Band Jazz: From the Beginnings to the Fifties*, sales of which have also exceeded 70,000 in its first year. (The performance of the Recordings division in the marketing area was especially impressive, net sales for the year having exceeded \$3,500,000.) While scholarly books never reach comparable markets, sales of University Press division books totaled over 100,000 copies during the year, achieving a record gross sales income figure in excess of \$1 million.

A major highlight of the Press's year occurred in the production area with increasing use of automatic data processing techniques and equipment in manuscript preparation. Word processing terminals have been installed at the Press for editorial use with suitable manuscripts. Each of the Series Publications editors has had an opportunity to learn the process of editing on these terminals, and the contract typesetter for Series Publications has been refining its programming of the manuscripts produced this way. Results have been so satisfactory in terms of both time and costs of production that the Press is now strongly encouraging all Institution authors to prepare their manuscripts for the *Contributions* and

*Studies* series for this process. In addition to the Press's advances in practical use of automatic data processing, Series Publications Supervisor, Barbara Spann, and Production Manager, Lawrence Long, have coauthored a manual, *SI Press Instructions for Word Processing to Typesetting*, which has been widely distributed both within and outside of the Smithsonian Institution, and throughout the year they conducted seminars on this procedure for authors, publications coordinators, and support staffs at a number of Smithsonian museums.

The three publishing divisions of the Press were fully integrated during the year under centralized direction, business and administrative management, production, and marketing. The Press has functioned smoothly despite the challenge early in the year of having to move principal operations from the Arts and Industries Building to new quarters in L'Enfant Plaza while former offices undergo major restoration. There are still a few rough spots in the areas of warehousing, order fulfillment, and control of the three widely separated inventories of popular books (17 titles with an inventory of 148,746 copies), scholarly books (332 titles with 306,248 copies in inventory), and records (50 titles with a stock of over 35,000 records and cassettes), but these areas are receiving priority attention. An additional challenge to management stems from the fact that the new quarters are not large enough to accommodate either the editorial and design staffs of Smithsonian Books division or the distribution and order fulfillment division.

Finally, the Press took on a new role commensurate with its growing image and reputation when it organized and acted as host, representative of all book-publishing elements of the Institution, at a Smithsonian Institution booth at the American Booksellers Association convention in the Washington Convention Center in May. In addition, the Press was selected by the Association of American University Presses to act as host and program organizer for the annual regional meeting of the AAUP held in Washington from September 29 through October 2.

### Smithsonian Magazine

Fiscal year 1984 was a very successful year for *Smithsonian* magazine. During the year the magazine exceeded 2,000,000 in circulation. Advertising was better than in 1983 and along with in-

creased membership contributed to the greatest surplus in the magazine's history. Once again the magazine made a significant contribution to the unrestricted funds of the Institution.

During this growth the magazine passed on to other divisions, by the transfer process, members who became Contributing Members, Resident Associates, and Cooper-Hewitt Associates. The system works well: it introduces people to Smithsonian membership through the National Associates, then for the course of their National Associates membership tells them about other membership opportunities within the Smithsonian.

The Smithsonian is an institution of marvelous variety: *Smithsonian* magazine is a generalist publication which reflects, for the layman, that variety. But nearly every person has a special interest also, and the *Smithsonian* can satisfy those special interests as well as the general interests of the educated lay person.

The Resident Associates Program affords Washington area residents the chance to participate in programs of the Smithsonian itself; the Cooper-Hewitt offers the same opportunities for New Yorkers. The Contributing Membership Program, geared to a nationwide constituency, enables a person to have a deeper connection with the Smithsonian. Whatever decision an individual makes, *Smithsonian* magazine goes to all members and it is through *Smithsonian* magazine that the initial contact is made with the Smithsonian Institution.

Among the year's editorial highlights was a two-part series on Antarctica with special emphasis on scientific research and resources. The author, Michael Parfit, spent more than four months on the continent, not only visiting McMurdo Sound and the South Pole station, but also visiting American and foreign bases on the Palmer Peninsula, and traveling the offshore waters on American research vessels. Also in 1984, a major effort from the previous year—James Trefil's two-part series on the universe—was recognized with the A.A.A.S.-Westinghouse award for science journalism.

### *Visitor Information and Associates' Reception Center*

This was an exceedingly busy and productive year for the Visitor Information and Associates' Reception Center (VIARC). Newer programs made significant progress toward project goals, while a

number of enhancements enabled established activities more fully to serve the needs of the public, Associate members, and Smithsonian staff, volunteers, and interns.

A limited amount of additional office space eased crowded working conditions for several VIARC units while displacement from the South Tower Room due to construction projects posed an unanticipated challenge for others. Thanks to the cooperation and efficiency of the Institution's Communications and Transportation Services Division, the relocation of the Seven-Day Information Units' Telephone Information Program to temporary accommodations in the west range of the Castle was accomplished without missing a call. This program gained twelve new telephone volunteers and a weekend program assistant to aid in the task of responding to some 320,000 phone inquiries. Telephone traffic escalated to an all-time high during *The Precious Legacy* exhibition when a record 1,300 calls were received on December 26. As in the past, the Washington Craft Show, the Festival of American Folklife, and NASM special events also generated considerable telephone inquiries.

The Museum Information Desk Program, serving fourteen desks in eight museums, added fifty-seven new volunteers to the Information Specialist corps; extended desk services to the National Portrait Gallery for the duration of the exhibition *Masterpieces from Versailles: Three Centuries of Portraiture*; aided in the design and implementation of a crowd control system at the National Museum of Natural History for *The Precious Legacy* exhibition; staffed the National Air and Space information desk for fourteen hours during a day-long symposium and the "Lunar Landing Party" which followed it. Information Specialists were also called upon to greet and direct guests at the installation ceremony of the Institution's Secretary Robert McCormick Adams.

Achievements of VIARC's Information Outreach Program, established in fiscal year 1983 to increase the Institution's capability to inform and orient prospective visitors and to promote Associate membership, were perhaps the most broadly based. Participation in local, national, and international tour and travel industry marketplaces, including World Travel Market, provided an opportunity to disseminate trip planning information and to identify the Institution as a complex of museums rather than a single museum on the Mall, for some twenty thousand journalists, travel writers, and tour trade representatives. The booklet *Planning a Smithsonian Visit: A Guide for Groups* was produced specifically



Summer visitors get a head start on planning their day at the Smithsonian by attending a 9:30 a.m. slide/lecture orientation presented by the Visitor Information and Associates' Reception Center. Some 6,000 visitors were able to attend the early morning sessions after temporary space was assigned in the Great Hall of the Castle for such presentations.



to meet the needs of group travel planners. With the permission of Smithsonian Books, the colorful graphics on the dust jacket for *The Smithsonian Experience* were incorporated into the design of a collapsible display unit and presentation folder used at travel industry functions. An orientation videocassette was produced in cooperation with the Office of Telecommunications for use at tourist sites, including four Mall museums, and travel marketplaces. Other cooperative ventures included participation in the Office of Elementary and Secondary Education's Regional Events programs to promote previsit trip planning and the use of *Smithsonian* magazine as a classroom resource, and, with *Smithsonian* magazine, the design of a tote bag embellished with a montage of magazine covers, for use as a membership marketing tool. A campaign to promote the sale of National Associate memberships throughout the Institution resulted in a 600 percent increase in these sales, primarily in the Museum Shops.

Another important accomplishment under the aegis of the Information Outreach Program was completion of a design study by the George Washington University Department of Urban and Regional Planning. Titled *The Smithsonian: Enhancing the Visitor's Experience*, the study made recommendations for an exterior graphic information system to assist visitors in locating the Smithsonian, understanding its scope, and making informed use of their time in the museums.

A tremendous boost was given Group Information Services, another component of the Information Outreach Unit, with the temporary assignment of much needed public orientation space in the Great Hall of the Smithsonian Institution Building. For the first time the Castle was opened at 9:15 A.M. to admit some six thousand visitors to the early morning presentations. Regular access to this space netted an overall 75 percent increase in visitor attendance at the daily 30-minute slide/lecture overviews of the Institution. A 20-minute variation of this presentation for young visitors was inaugurated in the fall. The Castle Docent Program conducted 112 behind-the-scenes tours for National Associates participating in the "Washington Anytime Weekend," and additional tours for participants of other special programs. The Mobile Information Program's units were redesigned to make them easier to maneuver on the walkways outside Mall museums. Operating during the peak visitation period between Memorial Day and Labor Day, their assistance to visitors complemented VIARC Information Desk services within the museums.

The Staff/Volunteer/Intern Service Unit (svis), another principal VIARC component, undertook a major new responsibility with the initiation of the Intern Information/Registration Program. In its first year of operation, the Program compiled a central registry of 379 interns, 26 of whom began their internships prior to the beginning of the fiscal year. An analysis of year-end figures showed that 310 interns were United States citizens while 43 were foreign-born; 241 were females and 112 were males; the largest contingent of interns, 55 percent, was in residence from June to August. In addition, the Program produced new printed materials, including a *Handbook for Smithsonian Interns* and *Housing Information for Interns and Fellows*.

One of svis's established programs, the Independent Volunteer Placement Service (ivps), registered an all-time high of 964 behind-the-scenes volunteers, a 14 percent increase over fiscal year 1983, and responded to 184 staff requests for qualified volunteers to assist in curatorial and technical projects. In answer to an increasing demand for foreign language proficiency, a Translation Services group was formed. During the annual reception honoring behind-the-scenes volunteers, twenty-four individuals were recognized for ten or more years of continuous service.

The annual Institution-wide survey of volunteer involvement, also a svis responsibility, showed that 5,648 individuals contributed 449,933 hours.

An additional svis function, the Special Magazine Files—the central fulfillment center for reduced-rate staff and volunteer National Associate memberships—included the processing of 1,496 applications, and conversion of the Courtesy Mailing List, consisting of 885 records, to an automated system.

The Public Inquiry Mail Service (pims), VIARC's central research, response, and referral point for the Institution's unsolicited mail, handled more than 42,000 letters, an increase of 13.5 percent over last year. In cooperation with other bureaus and offices, pims produced 172 new and updated fact sheets, bibliographies, and pre-printed pieces to aid in responding to mail inquiries. pims was designated as the clearinghouse for the mail resulting from the "Smithsonian World" television series and prepared, in cooperation with the series research staff, nineteen bibliographies for these mail inquiries alone. This VIARC unit again conducted an Institution-wide mail survey and continued to update regularly and produce a master Institution-wide reference list of sales merchandise.

VIARC's Information Resources Division continued to compile

the variety of reference and information aids used by museum and telephone Information Specialists in answering questions about the Smithsonian. In addition, *Guide to the Nation's Capital and the Smithsonian Institution* was updated and reprinted in cooperation with *Smithsonian* magazine. Two new maps were created: one, in cooperation with the Office of Public Affairs, shows the location of Smithsonian museums in Washington, and the other, a regional map, indicates major highway arteries into the capital. The addition of a Metrorail subway map in color was among the refinements made in a new edition of *Planning Your Smithsonian Visit*, one of the numerous brochures and flyers produced by the division to support VIARC programs.

No summary of the year would be complete without mention of the involvement of VIARC in the 1984 annual meeting of the American Association of Museums in Washington, D.C. The designation of VIARC's director as Volunteer/Hospitality Chairman saw the enlistment of several VIARC and other Smithsonian staff members to work with museums and cultural institutions city-wide to coordinate the recruitment, training, and scheduling of some six hundred volunteers for assistance at special events and regular sessions of the four-day gathering.



## ADMINISTRATION

The administrative, technical, and other central support services work behind the scenes to help assure the effectiveness and efficiency of the Institution's research, collections management, and public programs. These organization units include accounting and financial services, audits, congressional liaison, contracts, equal opportunity, facilities services, grants and risk management, information resource management, general counsel, management analysis, personnel administration, printing and photographic services, programming and budget, special events, supply services, and travel services. The costs of these central services are controlled tightly and consequently amount in total to only about 8 percent of the Institution's total operating expenditures exclusive of the expenses of maintenance, operation, and protection of facilities.

As described in greater detail in the following sections, progress in administrative support was made in a number of areas. Computer and word processing technology were increasingly extended to bibliographic, collections management, financial management, and office automation applications. Important progress was made on construction projects, energy conservation, communications management, security, and employee health services. Affirmative action efforts showed results. Internal controls were assessed and photographic services programs were strengthened.

The International Exchange Service continued to serve as a transshipment point for books and journals being sent by United States educational and cultural organizations to foreign institutions and for similar materials coming to institutions in this country from abroad.

## *Administrative and Support Activities*

JOHN F. JAMESON, ASSISTANT SECRETARY FOR ADMINISTRATION

Planning and budgeting activities continued to receive much attention during the year in a coordinated effort to identify, present, and meet the Institution's goals and objectives. The *Five-Year Prospectus, FY 1985-1989*, was approved by the Board of Regents at its January 23, 1984, meeting. This planning document presented future year building requirements and described directions in research, education, and other public service activities as well as requirements to improve information handling, security, and maintenance of collections and facilities. Preparation of the plan involved staff in all areas of the Institution. Subsequent to Regents' approval, work started on the next cycle of preparation resulting in a draft prospectus for fiscal years 1986-1990 submitted for Regents' review at the September 17, 1984, meeting. The Office of Programming and Budget (OPB) concentrated on expanding the application of automated systems to the budget process, both in budget analysis and monitoring and in budget presentation. In addition, the OPB improved its capability to transmit federal budget schedule data directly into the Office of Management and Budget's computer system. The fourth Budget Formulation Workshop, held in December 1983, attended by over fifty Smithsonian staff at the middle management level, addressed the budget formulation process from the submission of bureau requests through the dynamics of the congressional hearing. Other workshops sponsored by the office provided bureaus with a better understanding of trust fund budget procedures and federal budget execution. Work continued on the development and preparation of a Smithsonian budget procedures handbook.

The Office of Information Resource Management (OIRM) began to implement elements of its forward plan aimed at improving access to information systems, services, and sources. The existing computer communications network was extended, a new broadband network capable of carrying data, images, and voice was introduced, and plans were made for the extension of these networks through an Institution-wide communications pathway over the next five years. A new mainframe computer was selected on the basis of requirements for user access to Institution data bases. An information center was established to provide support and training to staff throughout the Institution who were making

direct use of microcomputer-based systems and linkages to the mainframe to support program objectives. Institutional licenses were negotiated to some widely utilized microcomputer software packages and on-line tutorial and video courses were acquired to train staff in the use of this and other software.

OIRM initiated a program to support integration of specialized systems to meet the particular requirements of the Institution's research and collections inventory management. A workstation to satisfy a wide range of scientific automation requirements, including automated acquisition and analysis of data, was introduced. Funds were provided to assist the National Air and Space Museum in the development of an optical digital videodisc system for archival recording and retrieval of texts and images. Technical assistance was provided to test and implement an automated security system.

The first major Institution-wide Bibliographic Information System was installed to support access to and control over information in libraries, archives, and research files throughout the Institution. During the first several months of its operation, the system held over 300,000 records with on-line access from over one hundred terminals. Work continued on definition of a Collections Information System to provide access to information about the Institution's object collections and the exhibitions, tours, courses, and public programs which interpret them. Some of the software integral to the Collections Information System was acquired, including an institutional data dictionary/directory package. The full system, which will become operational in 1985, ultimately will provide potential access to over 100 million artifacts and specimens in the Institution and make possible staff and public exploration of the vast holdings of the Smithsonian.

OIRM provided guidance to offices throughout the Institution in the selection and acquisition of automated equipment. It set directions for office automation and microcomputer systems' integration predicated on integration with the new mainframe hardware. It established a plan and a schedule for transition to the new mainframe which will result in converting and upgrading all in-house developed software over the next two years.

In a statement of its mission, OIRM placed an equal emphasis on its policy development, planning, data administration, and information services roles alongside its traditional systems development and computer operations function. A reorganization of the office was initiated to achieve the stated balance.

Highlights for the Office of Facilities Services and its components included planning and development of a major food facility at the National Air and Space Museum (where construction is projected to start in early fiscal year 1985), and completing of the exterior foundation wall, excavation, and mat foundation on the Smithsonian Quadrangle project. Construction of the Quadrangle is expected to be completed in early 1986. Other activity during the year, under the direction of the Office of Design and Construction, included continuation of major exterior restoration of the Arts and Industries Building and of the Renwick Gallery façade. Work also continued on major fire protection projects in the Museums of American History and Natural History. In addition, work started on master facilities plans for the Smithsonian Tropical Research Institute and the Smithsonian Environmental Research Center. Major energy improvements were also made in the heating, ventilating, and air conditioning systems at the Museum of American History. Also at the Museum of American History, other major construction activity during the year included the completion and opening of the ice cream parlor and the museum shop / bookstore.

Major activity in the Office of Plant Services included a reorganization of the Crafts Service Division to strengthen internal management controls, and initiation of a program that combined physical plant inspections with gathering Smithsonian real property data for over three hundred and fifty buildings and structures. Energy conservation efforts this year focused on greater controls over the use of lighting throughout the buildings. Efforts in reducing long-distance telephone calls continued to be successful, as evidenced by usage reductions of about 16 percent during the year. Further savings in communications expenses will be realized in 1985 and beyond through the purchase of telephone equipment. The office has also developed a pilot vehicle-replacement program that when fully implemented will provide for planned, phased replacement of over three hundred Smithsonian vehicles.

Significant progress was made in the Office of Protection Services during the past year. As part of the comprehensive occupational health services program for the staff, employee assistance counseling was expanded to a full-time basis. Health Services Division has assumed full responsibility for health programs at the National Zoo, expanding the number of services available to Zoo employees. To allow nurses to concentrate on occupational health programs, emergency medical technicians have been appointed to provide



first aid services. Employee medical records are now being automated along with safety and industrial hygiene records.

The Safety Division continued its phased program to control or abate asbestos throughout the Institution's facilities and learned through an independent study that its program was one of the best of its type in the country. Safety committees have been established wherever required to keep employees involved in the effort to maintain safe and healthy work places. A major program to train supervisors and managers in occupational safety and health requirements has begun, and presentation of the first classes is expected in mid-1985. Development of fire protection master plans concentrated on the installation of automatic sprinkler protection and smoke detection in nine facilities.

The security system designed for the Institution was placed into operation at the Museum Support Center and at the central control station in the Smithsonian Institution Building. The system will next be extended to the Hirshhorn Museum and Sculpture Garden, with work expected to begin in June 1985. More than sixty projects to upgrade security devices throughout the Institution were begun, and twenty-six projects were programmed for fiscal year 1984 in an upgrade program that is projected for completion in fiscal year 1987. As always, the Smithsonian's guard force continued its effective service to the visiting public and to the security of buildings and collections.

Other administrative services continued their strong support for the Institution's programs. The Office of Personnel Administration took a number of steps to strengthen its recruitment efforts especially for minority persons. Information on employment opportunities was presented at twelve job fairs and the office completed work on a number of pamphlets describing particular categories of employment. Efforts at community contacts and networking with the historically Black colleges and universities continued. In order to achieve improved control and reduce costs to the Institution, the personnel office contracted for the management of unemployment insurance claims. The labor relations program was active with the renewal of a contract with the National Maritime Union and the initiation of negotiations with the United Food and Commercial Workers Union.

The Office of Equal Opportunity emphasized special recruitment of minority professional candidates with some improvements in the representation of minority persons and women in professional jobs and in upper grades. Program and facility accessibility for disabled

persons continues to improve. Accessibility self-assessment surveys were completed by the bureaus and evaluated by the Equal Opportunity staff. Preliminary analysis of the data showed many completed and ongoing program and facility accessibility projects. Nevertheless, data was further developed into four major areas of concern: publicity and publications; exhibitions, programs, and activities; Smithsonian staff education; and exhibit labels. Next, task forces composed of bureau personnel were established to make recommendations in their respective area of concern. Outreach efforts to minority and women's organizations and communities continued with equal opportunity exhibition displays at conferences held by the National Council of Negro Women, National Association for Equal Opportunities in Higher Education, Federally Employed Women, LaRaza, and the President's Committee on Employment of the Handicapped. In addition equal employment messages were placed with four major minority and women's publications that reach an audience of approximately one million people.

During 1984 key projects in the Office of Printing and Photographic Services centered on archival storage of photographs, expanding and improving services, sponsoring photographic education programs and exhibitions, and supporting the continuing collections management priorities of the Institution.

The office's cold storage room for processed film was improved with backup systems for both cooling and humidity control. The office's 35mm color slides from 1977 to 1984 were placed on video-disc for reference use. This disc also contains test subjects from black and white files and a variety of files from other Smithsonian bureaus. During the year a new branch office was opened at the Museum Support Center and a new office was established and staffed at the Smithsonian Tropical Research Institute. The office cosponsored for the sixth year a free photographic seminar for students with the White House News Photographers Association. The office also conducted a training program for museum professionals through the Office of Museum Programs. In addition, for the first time the office proposed the development of a photo exhibition based on its photodocumentary work. The exhibition, covering twenty years of activities on the Mall, opened in August. The office also continued the management of the photodocumentary project in Numismatics, and also continued support of inventory projects in several bureaus.

The Management Analysis Office (MAO) continued its program of regularly scheduled and special reviews and analyses of manage-

ment and organization problems. It also continued its program, begun in 1979, of bringing to the Smithsonian for the summer small numbers of carefully selected students in graduate schools of business administration to work on management projects of interest to Smithsonian offices for which an education in business administration is particularly appropriate. In 1984 three such graduate students worked in the Office of Audits, the Office of Fellowships and Grants, and the Museum Shops bringing the total since 1979 to twenty-four. The Office of Audits played a key role in the planning, development, training, and implementation of an internal control assessment program spanning all organization units and their functions and involving managers at all levels. Oversight of the program was made the responsibility of the MAO and results of the assessment and a plan for necessary strengthening actions was prepared for the management of the Institution and for Board of Regents' review.

The Office of Supply Services took prompt action to implement the new Federal Acquisition Regulations which govern federal fund purchases and contracts. This office also exceeded its high goals for procurement and contracts with small and minority business. The Travel Services Office provided an unusual level of support for programs including arrangements for Folklife Festival participants from remote areas of Alaska and for the Institution's scholarly, exhibition, and performance programs at the Edinburgh Festival.

### *Financial Management Activities*

On November 23, 1983, Mr. Christian C. Hohenlohe resigned as Treasurer, having directed the Institution's investment, accounting, and business management activities with thoughtfulness and outstanding achievement for over five years. Mr. John F. Jameson, the Assistant Secretary for Administration, served additionally as Acting Treasurer until the Board of Regents' appointment of Ms. Ann R. Leven. Formerly an officer of the Chase Manhattan Bank and Treasurer of the Metropolitan Museum, Ms. Leven joined the Smithsonian staff on August 1, 1984.

The expanded use of computers and related equipment during the past year has enabled major progress in the management and analysis of the Institution's financial resources. Through develop-

ment of an innovative software and communications systems design, the Accounting Office can update financial files on a daily basis and disseminate information electronically to selected other offices. Introduction of microcomputers into the Office of Accounting and Financial Services, along with an intensive training program on their use and capabilities, has resulted in improved financial reports and the elimination of much manual preparation. Cash forecasts are now more comprehensive and timely owing to the use of the microcomputer in tracking and analyzing cash flow and investments; electronic monitoring of banking transactions has contributed to an increase in current fund investments income.

A new training course was developed on accounting policies and procedures for secretarial, administrative, and clerical personnel. Courses were also given jointly with the Travel Services Office on travel regulations and requirements. These courses were designed to enhance staff understanding of the financial management system and to improve the processing of related financial documents.

Staff training was also a focus of the Office of Grants and Risk Management, which continued its efforts to improve grant administration with the development of a new seminar format and creation of a grants administration handbook. Efforts to increase awareness of risk management concepts by Smithsonian staff, as well as the museum community, continued as a priority. Reviews of contractual requirements such as loan agreements and vehicle leasing resulted in eliminating or reducing risks and administrative burden.

Following a comprehensive study and management review, the Smithsonian-managed food service operations in the National Air and Space Museum building and the Hirshhorn Museum and Sculpture Garden were restored to concession management, effective in October 1983. During the past year, a proposal to improve significantly the quality of all Smithsonian food services was developed. Approval of plans to construct a new restaurant at the east end of the National Air and Space Museum was requested and received from the National Capital Planning Commission and the Commission of Fine Arts. Work was also initiated on plans to renovate and upgrade other Smithsonian restaurant facilities.

Sales in the museum shops and through the mail order catalogues were exceptionally strong this past year, reflecting wide acceptance of Smithsonian merchandise. A greatly expanded and modernized museum shop was opened in the Museum of American History. The shop in the Museum of American Art was renovated as were the theater and spacearium shops in the Air and Space Museum.

New electronic cash registers were installed in all shops, greatly facilitating inventory and cash control. Major improvements were made in the mail order fulfillment facilities to expedite the delivery of merchandise. Increased emphasis on extending the Institution's outreach through the licensing of reproductions and other products closely related to the Smithsonian's collections led to new agreements with several manufacturers. Revised parking guidelines and administration resulted in improved parking availability for both the public and employees.

### *Smithsonian Institution Women's Council*

SUSAN KALCIK, CHAIRPERSON

The newly elected Council began its two-year term in October, 1983, and continued efforts to identify and study the concerns of employees, serve as an advisory group on women's issues to the Secretary and administration, and work for the general advancement and improvement of conditions for employees.

The Council's standing committees reflect its major areas of concern: Day Care (Katherine Sprague, chairperson), Newsletter (Susan Jewett), Information Processing (Victoria Hershiser), Services and Benefits (Susanne Owens Koenig), and Training (Margery Gordon). The Training Committee sponsored its annual two-part tax preparation seminar for employees. The Day Care Committee focused its efforts on the location of an appropriate space for a center. The *4 Star* newsletter adopted a quarterly format. Its issues on professionalism among museum support staff and the M\*A\*S\*H exhibition received the most positive and supportive responses.

The Council reviewed and organized the Council's papers and materials presently housed in the Smithsonian Institution Archives. A senior advisory group of eight women in upper management was formed to advise the Council on special issues. In a departure from its annual Women's Week in September, the Council is recognizing March as Women's History Month at the Smithsonian. It will publicize exhibitions and activities presented throughout the Institution in conjunction with this theme. The Council is also working on plans for a two-day conference about women in museums to be cosponsored with the Office of Museum Programs.



Mary Ripley, Barbara Bush, and Jane Hart, chairman 1983-84 of the Women's Committee of the Smithsonian Associates, are shown at a coffee at the Vice-President's Residence honoring Mrs. Ripley as founder of the committee.

## MEMBERSHIP AND DEVELOPMENT

JAMES MCK. SYMINGTON,  
DIRECTOR

### *Office of Development*

The capital campaign to raise \$37.5 million for the Quadrangle's construction was successfully completed June 30, 1984. Major credit for this achievement can be ascribed to the National Board of the Smithsonian Associates and, in particular, to William S. Anderson, former board chairman, who served as chairman of the Quadrangle Campaign. Directly, through members' individual contributions, and indirectly, through members' corporate relationships, nearly \$4 million in contributions is to be attributed to the National Board of the Smithsonian Associates with the able leadership of Mr. Anderson and Board Chairman W. L. Hadley Griffin. Mr. Anderson, in addition to his capable management of the Quadrangle Campaign, generously made available the NCR Corporation's Tokyo office as headquarters for the Friends of the Smithsonian Institution in Japan Committee, which generated sizable contributions to the Quadrangle from corporations and foundations in Japan.

With the construction of the Quadrangle now assured, and in recognition of ever more competition in the philanthropic field, the Development Office staff is being increased in size and restructured so as to provide closer and more effective cooperation with the bureaus and offices of the Institution. Individual development officers have been assigned to specific Smithsonian units, to work more intimately with their respective directors, curators, and scientists. A third research associate has joined the staff, and Ilene Rubin has been appointed development officer at the Archives

of American Art in New York City. Yet another development officer is soon to be added to the Washington staff, together with a fourth secretary for the office.

A new development brochure is about to be published, and this, together with the outstanding brochure on Smithsonian science activities produced by the Office of Public Affairs, will be especially useful in generating private support for the Institution.

With the enlargement of the development staff, there is now an opportunity to place new emphasis on such deferred giving programs as the Smithsonian Pooled Income Fund, Unitrusts and Annuity Trusts. Additional efforts will be made to encourage friends of the Smithsonian to consider bequests and gifts of life insurance to the Institution.

The new museums of the Quadrangle can be expected to require substantial funds to support their exhibition programs in the years ahead, adding to like needs of the Evans Gallery of the National Museum of Natural History, temporary exhibitions of the other Smithsonian museums, and sites's traveling exhibitions. Corporate sponsorship of such programs is essential. At the same time, the demands upon corporate contributions committees have intensified, especially from human services organizations in their own headquarters and plant communities. Recognizing these new developments, the Smithsonian has created a Major Exhibitions Fund, from which financial support can be drawn, in whole or in part, for specially selected exhibitions. This will be of the greatest assistance to the Development Office as it seeks corporate sponsorships, making possible appeals for corporate contributions to match the Smithsonian's own funds and permitting such sponsorships at lower corporate expenditures.

As international educational and research activities of the Smithsonian take form and substance, it is expected that they will be attractive to leading national foundations. New focus on world peace by the Council on Foundations suggests that this is a strong possibility, and appropriate measures are planned for 1985 and beyond, under the leadership of Secretary Adams.

### *National Board of the Smithsonian Associates*

This board remained under the able leadership of W. L. Hadley Griffin, in his final year as chairman. Board members' interest in



the Institution and most especially in the Associate programs continues strong.

The close association between the National Associate Board and the Board of Regents continues with Chairman Griffin having attended the Regents' meetings.

New members elected to the board in 1984 were Frank Cary, Charles Dickey, Jr., Mrs. Robert Donner, Jr., Howard Love, Alexander McLanahan, and Charles Murphy, Jr.

The board met in St. Louis in spring 1984 and, as usual, in Washington in the autumn of 1984. The board at its autumn meeting elected Seymour Knox to assume the chairmanship as of January 1, 1985. The Executive Committee of the board, subsequent to the meeting, proposed they meet with Secretary Adams in October to explore areas in which the board could help the Institution.

### *Women's Committee of the Smithsonian Associates*

The Women's Committee supports a major objective of the Smithsonian Associates by assisting the Smithsonian Institution through volunteer service. The committee was able to award \$70,414 to twenty-five different programs throughout the Institution as a result of the extremely successful 1984 Washington Craft Show and the 1984 Christmas Dance. From these two fundraisers, the committee provided funds in amounts varying from \$1500 to \$6000 for the following: five anthropological films of Ivory Coast tribes for the National Museum of African Art's education program; seed money for satellite photographs of the Niger Delta for the National Air and Space Museum; 2,000 slides of works by American artists for the National Museum of American Art; "America on Film: A Free Film Theater" which is coordinated with the National Museum of American History; the reprinting of *Space for Women* for the Smithsonian Astrophysical Observatory; the producing of video documentaries on the Maser atomic clock from the outtakes of the television program, *Here at the Smithsonian . . .*; the complete microfiche archive of Christie's Auction Catalogues for the Cooper-Hewitt Museum of Decorative Arts and Design; kits of *Museums as Storytellers* for the Office of

Elementary and Secondary Education; the producing of a slide show, brochures, and signs for the Discovery Trail at the Smithsonian Environmental Research Center; the developing of a prototype educational packet on India entitled: *Aditi—A Celebration of Life*; the cataloguing of scientific manuscripts and entering of data into computerized library files for the Smithsonian Institution Libraries; exhibition and slide show on conservation of contemporary works of art at the Hirshhorn Museum and Sculpture Garden; the developing of an exhibition on the Golden Age of Radio at the National Portrait Gallery; the conserving of thirty-six paintings of outstanding Black Americans for the Smithsonian Institution Traveling Exhibition Service exhibition, *Portraits in Black*; the producing of a deforestation poster in Panama for the Smithsonian Tropical Research Institute; a set of color transparencies for the Visitor Information and Associates' Reception Center's introduction to the Smithsonian Institution; and the assisting of the Wilson Center to obtain a collection of four hundred Russian books written in English from 1669 to 1917.

Additionally, funding was provided to the National Museum of Natural History for entering taxonomic information on recent and fossilized remains in its computer system, completion of a research project on riffle beetles, purchase of the Whirligig beetle collection and Australian and New Zealand beetle collection, and underwater artwork and illustrations for ecological study of coral reef and mangrove islands in Belize. The National Zoological Park received funds to purchase a spotting scope to be used for the study of Californian sea otters, equipment to establish a bird hand-rearing lab, development of a bibliography of zoological films, and stipends for three research students to study reproduction in zoological animals.

The second annual Washington Craft Show was held April 27–29, 1984, in the Departmental Auditorium. One hundred craft artists were chosen by a distinguished jury composed of Michael Monroe, curator at the Renwick Gallery; Ed Rossbach, Professor Emeritus of Design at the University of California at Berkeley; Gerry Williams, potter and editor of *Studio Potter*; James Carpenter, glass artist from New York City; and Jackie Chalkley, ceramist and gallery owner. Nearly 10,000 people attended the exhibition and sale during the three-day event which is now recognized as one of the finest craft shows in the nation. In addition to a fundraising preview party, a Young Collectors Evening and a Designers Lunch-

eon were held. "Crafts Today—The 1984 National Forum on 20th Century American Glass," held concurrently, was sponsored by the National Associates Travel Program, the Resident Associate Program, and the James Renwick Collectors Alliance. The forum offered three days of lectures, tours of galleries, studios, and private collections in addition to the Craft Show preview party.

In the spring, members of the Women's Committee extended the hospitality of their homes with dinner parties for a special Contributing Members weekend in Washington.

In December, Mrs. George Bush held a coffee at the Vice-President's residence for the Women's Committee membership to honor Mrs. Ripley as founder of the Women's Committee by giving recognition to her active interest and gracious support of the committee and conferring on her the title of honorary life member.

The year ended with a tribute from Mr. and Mrs. Ripley to the Women's Committee, at the Fourth of July celebration held on the rooftop of the National Museum of American History, acknowledging the committee's hard work and successful support of the Institution over the past eighteen years.

### *James Smithson Society*

Since the inception of the James Smithson Society in 1977 as the highest level of the Contributing Membership of the Smithsonian Associates, the society has granted more than \$1,300,000 in support of Smithsonian projects and acquisitions. This year, through the contributions of Annual Members, the society made the following awards: To the Archives of American Art in support of the republication of *From Reliable Sources*; to the National Museum of African Art for the acquisition of a "Mwadi" headdress by the Tetela Peoples of Zaire; to the National Zoological Park, in cooperation with the National Museum of Natural History, toward the publication of a book on discovery rooms and learning labs; to the National Anthropological Archives for an adjunct symposium on the Wilkes Expedition; to the Smithsonian Tropical Research Institute for the project *Management of the Green Iguana: Alternatives to Destruction*; to the Smithsonian Institution Traveling Exhibition Service for the proposed educational publication, *Move*

*It!*; to the Office of Telecommunications to create a pilot program for a Smithsonian television series targeted at children; and finally, to the Office of Horticulture to purchase a book collection on American Landscape Architecture. The Smithsonian Institution gratefully acknowledges the generous support of the James Smithsonian Society.

The annual weekend for members of the society, held every year in conjunction with the autumn meeting of the National Board of the Smithsonian Associates, was scheduled September 15–16 this year in order to honor Secretary Ripley prior to his retirement on September 17. At a formal dinner held at the National Museum of American History, National Board Chairman W. L. Hadley Griffin announced the 1984 Smithsonian Society grants. The next morning, a behind-the-scenes tour of the National Air and Space Museum offered members a private showing of unedited IMAX film footage photographed by astronauts for the upcoming film *The Dream Is Alive*; a preview of the exhibition *The Art of Robert McCall*; and demonstrations of innovative computer technology designed by NASM staff. Following the tour, Ambassador and Lady Wright of Great Britain invited Smithsonian Society and National Board members to a luncheon in their honor at the British Embassy residence.

### *Smithsonian National Associate Program*

The Smithsonian National Associate Program (SNAP) was established in 1970 in conjunction with *Smithsonian* magazine. The program provides educational and cultural activities for Smithsonian Associates across the nation and around the world through seminars, workshops, films, and lectures in the arts, sciences, and humanities—both live and through cable television. Domestic and international study tours are arranged with premier educators on all continents. In addition, the program's fundraising activities have resulted in a significant source of revenue for the Institution's unrestricted funds.

#### CONTRIBUTING MEMBERSHIP

The Contributing Membership of the National Associate Program provides unrestricted funds for Smithsonian research and educa-



Contributing members of the National Associates study archeological treasures at the opening of *Ban Chiang: Discovery of a Lost Bronze Age* at the National Museum of Natural History, November 1, 1984.

tion programs through six levels of annual memberships: Supporting (\$50), available only to members living outside the greater Washington, D.C., metropolitan area; Donor (\$100); Sponsoring (\$250); Sustaining (\$500); Patron (\$1,000); and the James Smithsonian Society (\$1,500).

Membership in the program continues its steady expansion. The 20 percent growth experienced in fiscal year 1984 brought to over 27,500 the total number of Contributing Members participating in and encouraging the work of the Smithsonian. Income from these members amounted to \$2,700,000 in 1984, a 25 percent increase over fiscal year 1983. This total includes more than \$225,000 from members who responded to special appeals from Secretary Ripley for additional contributions, over and above their annual membership dues. Also included are corporate matching gifts, which increased 25 percent over last year, to \$50,000.

Eleven complimentary special events were offered as benefits for Contributing Members during the year. These included an opening night reception and visit to the Golden Age of Flight Gallery at the National Air and Space Museum; an after-hours visit to the National Zoological Park for a picnic and special demonstrations of animal training; and an exclusive evening viewing of the new exhibition *James McNeill Whistler at the Freer Gallery of Art* and an elegant courtyard reception. An exhibition of eighteenth-century painted French fans at the Renwick Gallery provided the theme for the annual membership ball. French Ambassador and Mrs. Vernier-Pailliez served with Secretary and Mrs. Ripley as cohosts of the gala evening.

For the first time, Contributing Membership worked with the Associates Travel Program to plan a special behind-the-scenes weekend at the Smithsonian exclusively for Contributing Members. The tour offered a unique series of special experiences: candlelit dinner in the Commons, with Secretary Ripley and Edwards Park welcoming members to the Smithsonian; after-hours tours of and dinners in the Air and Space Museum and National Portrait Gallery; and access to other areas of museums normally off-limits to visitors. Enthusiastic participant response suggests that this tour will become an annual event, enforcing even more these members' special relationship with the Institution.

Through careful selection of other benefits for Contributing Members, the program works to assist other Smithsonian bureaus. The commitment to purchase catalogues of the traveling exhibition *Treasures from the Shanghai Museum: 6,000 Years of Chinese Art*

proved a significant element in the funding for that show, which concluded its successful United States tour at the National Museum of Natural History. Members within the Washington metropolitan area are automatically enrolled in the Resident Associate Program, supporting its monthly newsletter and classes. Those outside the area receive "Research Reports," published three times a year by the Office of Public Affairs to highlight special research and educational projects underway throughout the Institution.

Contributing Members have for some years received priority in registering when Regional Events Programs visit their home communities. In 1984, Contributing Members were offered complimentary tickets to one lecture and an invitation to an informal gathering planned in conjunction with the lecture. Such special treatment reinforces the message that these members are important to the Smithsonian, and increases their participation in the Regional Events offerings.

#### REGIONAL EVENTS

Since 1975 the Regional Events Program has served Associates and the American public living beyond the Washington, D.C., area by presenting lectures, seminars, and performances in their home communities. In 1984 Smithsonian curators and scientists discussed their current research activities in Princeton, Trenton, Hopewell, Roanoke, Salt Lake City, San Antonio, Midland, Winston-Salem, Spokane, Fargo, Moorehead, Rapid City, Sioux Falls, Albuquerque, Cincinnati, Cleveland, Columbus, and Pullman. Nearly two hundred events were offered to approximately 300,000 Associates and members of 106 cosponsoring groups.

Examples of recent programs include: "Adventurous Pursuits: Americans and the China Trade" with Margaret Christman, National Portrait Gallery (NPG); "The Golden Age of Flight" presented by Claudia Oakes, National Air and Space Museum (NASM), which highlighted the museum's newest exhibition gallery that opened in April 1984; Richard Fiske, National Museum of Natural History (NMNH), described the cataclysmic eruption of Krakatau in an illustrated lecture; Mark and Diane Littler (NMNH) offered seminars on marine plant communities of the tropics; Charles Millard, Hirshhorn Museum and Sculpture Garden (HMSG), presented an in-depth seminar on the paintings of Friedel Dzubas.

During the past year, the Regional Events Program has continued to expand its audience by working with national cosponsors who

invite their chapter members to participate in the program. In 1984 the World Wildlife Fund—U.S. and Sigma Xi, the Scientific Research Society, joined as national cosponsors. Several corporations—United Airlines, Piedmont Airlines, the Kroger Company, the Hertz Corporation, and Hilton Hotels—demonstrated their concern for public education by assisting the program with in-kind services.

College and universities continue to play a major role in the cosponsorship of the Regional Events Program. The University of Texas Institute of Texan Culture at San Antonio, Wake Forest University (Winston-Salem), Case Western Reserve University (Cleveland), and Washington State University (Pullman) served as primary cosponsors for the programs held in their communities.

The Regional Events Program drew salutatory notice from the press with more than 120 feature articles. Speakers were also invited to describe their research interests on sixty-seven television and radio broadcasts.

Over the past nine years the Regional Events Program has received many invitations to return to host cities. In 1984 the program returned to five cities: San Antonio, Spokane, Cincinnati, Cleveland, and Columbus. New topics were introduced during each return visit and for the first time, the program offered extended seminars which were fully subscribed.

#### *SELECTED STUDIES*

Selected Studies, an intensive education program of SNAP, conducted fifteen week-long seminars in fiscal year 1984. Drawing upon the collections and expert staff of the Smithsonian, as well as visiting scholars and scientific and cultural authorities, the programs combined illustrated lectures, films, special behind-the-scenes tours, and field trips to offer National Associates comprehensive courses on a wide variety of topics in the arts, humanities, and sciences.

Responding to demand and the necessity of limiting enrollment to assure a personal seminar atmosphere, some seminars were repeated. Among these were "Genealogical Research: How To" taught by leading genealogists, and "Aircraft Restoration: How To" which featured hands-on workshops with the master craftsmen who restore pieces for the outstanding collection of the National Air and Space Museum. In the seminar "Connoisseurship of American Antique Furniture, 1650-1840," participants learned through direct contact with the collection of the National Museum



of American History. The "Masterpieces of American Painting" seminare was developed to use the Corcoran Gallery of Art exhibition of that title while "French Impressionist Painting" was linked with the collection at the National Gallery of Art.

Two sessions of "The New Astronomies" were held at the Smithsonian's Whipple Observatory in Tucson, Arizona, where participants toured the world's greatest concentration of observatories with the directors and scientists who shared their latest research.

Lectures and creative workshops enabled Associates to learn the "secrets of success" from Edwards Park in a new course, "Irresistible Magazine Writing." Other new courses included "Lost America: Myth and Reality" which featured the American anthropological exhibitions at the National Museum of Natural History, and "Connoisseurship of Rugs" cosponsored with the Textile Museum. The special summer exhibition at the National Gallery of Art, which brought many of Watteau's famous paintings to the United States for the first time, was the focus of the unique program, "18th Century French Art: Age of Extravagance" taught by William Kloss.

In late 1984, the Selected Studies seminars and the Regional Events Program were combined to form the National Associates Lecture and Seminar Program.

#### ASSOCIATES TRAVEL PROGRAM

The Associates Travel Program presents educational study tours that mirror the interests and concerns of the Institution. Tours are designed for members who are particularly interested in the work of the national museum and the subjects in *Smithsonian* magazine. The educational content of both foreign and domestic tours is enhanced by study leaders; each trip is led by one or more Smithsonian staff. Since 1975, more than 47,000 Associates have participated in study tours throughout the world; in 1984, 3,600 members traveled on one hundred tours.

In 1984, Associates chose from forty-six Domestic Study Tours—to all parts of the United States—to experience first-hand the natural wonders and regional heritage of America. The Colorado Rockies was the setting for a week-long program on geology. David Steadman (NMNH) led two camping trips to the Hawaiian Islands where he was conducting research on bird fossils. In Cortez, Colorado, Associates joined archeologists in the field to dig for artifacts at an Anasazi Indian site. Other Associates visited the

Hopi and Navajo reservations to see traditional dances. The Crow and Sioux Indian tribes were featured on a trip led by Herman Viola, Director of the National Anthropological Archives.

Tours in private homes of the period were offered on trips featuring architecture and decorative arts in Charleston and Savannah, Philadelphia, and Boston. Out west, Associates relived the excitement of the gold rush era en route from San Francisco to Sacramento. Railroad buffs traveled to Colorado to ride the historic steam trains with local historians who related the history of Colorado's silver mines.

Special programs were also offered for Associates at the Smithsonian. The twelfth annual Christmas weekend featured the trimming of the Associates' Christmas tree and children ages 7 to 14 attended a special family weekend. A glass seminar was planned in conjunction with the second annual Washington Craft Show, and for the first time, a program was designed especially for Contributing Members to visit with museum directors and curators.

Foreign Study Tours included a variety of activities and a number of new destinations. The residential countryside program was expanded to include Lenk, Switzerland, as well as the towns in Austria, France, and England. Tours were based on art history and museums in Belgium and the Netherlands and on churches and castles along the Rhine River. Associates lived in a villa and monastery while studying the art and history of Florence. Others returned to England for our sixth annual Oxford/Smithsonian Seminar. Donald Lopez (NASM) led aviation enthusiasts on a study tour of airfields and air museums in England, Germany, and Switzerland.

The China series expanded with a tour studying decorative arts led by Julia Murray (FGA), and an overland journey traveling to China's more remote areas by train. Train buffs also enjoyed traveling east to west across the Soviet Union on the Trans-Siberian Express. Associates studied archeological sites in and around Mexico City and El Tajin on a new program in the Mexico series, and learned about geology and indigenous plant and animal life in Iceland. They photographed animal migrations in Kenya and visited Berber villages in Morocco.

Study voyages allowed Associates to visit archeological sites along the Nile, to study the countries bordering the Baltic Sea, and to circumnavigate the British Isles. Clyde Roper (NMNH) led a group of adventurous sailors on a two-week Atlantic Crossing, studying marine biology and maritime history while sailing from

Spain to the Caribbean aboard the tall ship *Sea Cloud*. Members visited sites of historical importance in Egypt, Jordan, Israel, and Greece, and participated in the Smithsonian's first India and Sri Lanka study voyage. In New Delhi, the late Prime Minister Indira Gandhi welcomed the group to her home and led a discussion of India's current politics and economics.

More than 3,400 Associates participated in the "Washington Anytime Weekend," designed to give members an opportunity to visit the nation's capital and the Smithsonian any weekend during the year. The program is executed in cooperation with the Visitors Information and Associates' Reception Center, which provides a behind-the-scenes tour of the Castle and is available for information and guidance during the weekend.

### *Smithsonian Resident Associate Program*

The Smithsonian Resident Associate Program—the private, cultural, continuing education, membership, and outreach arm of the Smithsonian Institution for metropolitan Washington, D.C.—is considered a model for museum membership and educational programs both nationally and internationally. Established in 1965 by Secretary Ripley to provide opportunities for residents of the Washington area to participate actively in the life of the Smithsonian, the program offers an extensive range of innovative, high quality, and timely activities that complement and enhance the exhibitions, collections, and research of the Institution.

The Resident Associate Program (RAP) draws its membership from the District of Columbia, Northern Virginia, and Maryland. Membership has grown from 8,000 with a retention rate of about 50 percent in 1972 to 56,000 (up 1,000 from 1983) in 1984, with a retention rate of 81 percent in fiscal year 1984 (up 2 percent from 1983). During fiscal year 1984, the more than 2,000 on-site activities offered—many with multiple sections—were attended by more than 272,300 persons, a substantial increase in number of both events and participants from the previous year. Many hundreds of thousands more persons heard and/or saw courses through audio-bridge or television broadcasts of lectures.

Self-supporting, except for Discovery Theater and performing arts, with occasional small grants to help fund special outreach events, the program reimburses the Institution for office space

rental, computer and audiovisual support, labor and guard service, and administrative support.

In fiscal year 1984, the Resident Associate Program instituted or assimilated seven new programs: pan-Smithsonian ticketed performing arts; Discovery Theater; Discover Graphics; foreign language courses; Tuesday Mornings at the Smithsonian; "The Cutting Edge of Science"; computer courses; and telecommunication outreach. These new projects, combined with the ongoing scholarships for inner-city children and adults, the collaboration with area national and international cultural and educational institutions, and the commissioning of works of art have broadened the Resident Associate Program's mission considerably. While membership continues to be a vital component, service to the community and enabling new audiences to enjoy Smithsonian resources are equally strong commitments.

#### COOPERATION WITH SMITHSONIAN BUREAUS

A primary focus of the program continues to be planning activities that enhance popular appreciation of Smithsonian exhibitions, collections, and curatorial research. This year's collaborations with the Hirshhorn Museum and Sculpture Garden included the October "Anniversary!" lecture by art critic Frank Getlein, organized as a preliminary event for the museum's tenth anniversary. The extraordinary conceptual artist Christo attracted a sell-out audience in May, marking the conclusion of the exhibition *Drawings 1974-1984*, and inaugurating the anniversary festivities. Accenting the *German Expressionist Sculpture* exhibition, the noted Brecht/Weill singer Martha Schlamme's "Cabaret-Concert" was also a sell-out. In connection with the Resident Associate course, "Italy Today and Tomorrow," an exhibition was organized by Hirshhorn Director Abram Lerner, *Art from Italy: A Selection from the Museum's Collection*. Students in the course attended the exhibition opening, which was also attended by His Excellency Rinaldo Petrignani, Ambassador of Italy, and Secretary Ripley. The Resident Associate Program joined the Hirshhorn Museum and Sculpture Garden in presenting one of the country's leading interpreters of contemporary music, the Twentieth Century Consort, in a series of four concerts.

Among the many courses, lectures, seminars, and special events organized in cooperation with the National Museum of Natural History was the gala celebration in April of the one-hundredth

anniversary of the National Gem Collection, "Baubles, Bangles, and Beads!", featuring a concert, reception, and viewing of the collection, and an all-day seminar, "Gemstones and Jewels: Masterpieces of the Mineral World," introduced by NMNH Director Fiske. The exhibition at the National Museum of Natural History honoring the fiftieth anniversary of Roger Tory Peterson's *A Field Guide to the Birds* was marked by the program's sold-out lecture by Peterson, cosponsored with the National Museum of Natural History, the Audubon Naturalist Society, and Friends of the National Zoo. Popular Young Associate classes, such as "Mammal Lab" and "Summer Nature Diaries," were conducted in the Naturalist Center, as were a number of adult courses, including "Everything You Wanted to Know about Trilobites" and "Collecting Rocks and Minerals." A seminar on evolution in March and a series of lectures by National Museum of Natural History curators on research conducted with the scanning electron microscope drew an enthusiastic audience in April, May, and June. Lectures, a gala opening, a concert, studio art classes, and courses were organized by the Resident Associate Program to complement the National Museum of Natural History's *Treasures from the Shanghai Museum: 6,000 Years of Chinese Art*.

Guest curator Rene Bravmann drew a sizable, enthusiastic audience to his lecture, "African Islam," cosponsored with the National Museum of African Art. Newly reinstalled exhibition halls at the National Museum of American Art were discussed in a fine slide-illustrated lecture in July by Director Charles Eldredge. An all-day seminar, "Glorious Glass," tracing the history of twentieth-century American glass, was organized this spring in conjunction with the James Renwick Collectors Alliance, the Smithsonian National Associate Program, and the Women's Committee of the Smithsonian Institution.

The Smithsonian Chamber Orchestra, led by renowned Dutch violinist Jaap Schroeder, performing on authentic instruments from the National Museum of American History collections, and the Smithsonian Chamber Players series held in the museum's Hall of Musical Instruments were cosponsored by the program and the National Museum of American History. "Portraits in Motion Showcase" and "Portraits in Song," cosponsored with the National Portrait Gallery, included virtuoso performances of "An Independent Woman" by gifted actress Peggy Cowles and "Clarence Darrow Lives!" by David Fendrick.

Many cooperative programs were held with the National Air

and Space Museum during the year and included a tour of the *Golden Age of Flight* in a new exhibition gallery in April, "Space Shuttle Flight Films" augmented by a slide lecture by Gregory Kennedy, Assistant Curator, and two lectures by prolific author and NASM Director Walter Boyne. This year, RAP and NASM began an ongoing cosponsorship of a series of concerts in the Albert Einstein Sky Theater.

Among the several events planned in conjunction with the National Zoological Park were "Last of the Giants: Saving the Elephants," an engrossing lecture by Curator of Mammals Edwin Gould, and art classes and projects conducted on site at the zoo for studio arts and Young Associate Summer Camp participants. Each summer several thousand Resident Associates enjoy "Summer Evenings at the Zoo," featuring live music and an opportunity to view the animals at sunset.

Enhancing the Freer Gallery of Art exhibition of James McNeill Whistler's work, curator of the exhibition David Park Curry lectured on the artist's achievements and association with Charles Lang Freer. The course, "James McNeill Whistler and the Expatriates," presented in a series of distinguished lectures, attracted a sizable group of students in July. Freer Gallery of Art Director Thomas Lawton lectured for "Tuesday Mornings at the Smithsonian" on "Beginnings of Western Connoisseurship of Chinese Art" in September.

Programs organized in cooperation with the Woodrow Wilson International Center for Scholars' Kennan Institute for Advanced Russian Studies included "Russia After Andropov: The Future of U.S.-Soviet Relations" and "Recent Russian Films." In cooperation with the center's Latin American Program, experts discussed "The United States and the Crises in Latin America and the Caribbean" in a stimulating fall course. Thomas A. Sebeok, Regents Fellow and Woodrow Wilson International Center for Scholars Fellow as well, taught "Introduction to Semiotics: The Science of Signs and Symbols" in the spring.

The Resident Associate Program responded to the Smithsonian's request to participate in the celebration of the Harry S Truman Centennial with many activities—all very popular and well received—including a video portrayal of Truman by consummate character actor James Whitmore, an all-day seminar with distinguished Truman scholars, a film series, a course, performances featuring music of the Truman years, and *The Buck Stops Here!*, an original musical based on the life of Harry S Truman, first pro-

duced in New York, which drew capacity crowds to five performances in September and received critical acclaim.

Twice each year the Resident Associate Program offers its members private viewings of major exhibitions. In November, approximately 6,000 members enjoyed *Masterpieces from Versailles: Three Centuries of French Portraiture* at the National Portrait Gallery and *The Capital Image: Painters in Washington, 1800–1915* at the National Museum of American Art. In August, approximately 9,000 members attended six gala openings of *Treasures from the Shanghai Museum: 6,000 Years of Chinese Art* at the National Museum of Natural History.

The program conducted its tenth annual photography contest for Resident Associates, young and old. Subjects of the entries are Smithsonian-related (museum buildings, objects in the collections, or people at the Smithsonian), and the winning photographs are displayed in the Associates Court and published in the *Associate* newsletter.

The program continued to commission original works of art to commemorate Smithsonian events. The latest work, commissioned in the fall, is a panoramic view of Smithsonian museums on the Mall by the well-known New York artist Richard Haas, whose work will be featured in the new Quadrangle.

#### OUTREACH

The Resident Associate Program works closely with civic, cultural, and educational institutions in the Washington area to offer activities that are open to the public as well as to members, and, through scholarships and special interest projects, seeks to expand its accessibility to all segments of the public. The objective is to reach the community at large and to increase public awareness of both the quantity and the quality of programming.

#### Discover Graphics

Discover Graphics is a free program providing talented high school students and their teachers opportunities to study etching and lithography. A master printmaker conducts student and teacher workshops at the Union Printmakers Atelier in the Lansburgh Cultural Center.

During the first full year of operation under the aegis of the Resident Associate Program, over 150 secondary school students and their art teachers from the District of Columbia, Maryland, and Virginia received studio and seminar training in this lively

program, and several have been awarded major art school scholarships and national prizes, based on their portfolios assembled in Discover Graphics. A student exhibition of selected prints, juried by curators from three Smithsonian museums, was held at the National Museum of American History May 12 through July 5. A new term began in fall 1984, and is fully subscribed.

### Scholarships

For the twelfth consecutive year, tuition-free scholarships to Young Associate courses were awarded to inner-city youngsters in the District of Columbia schools. Adults also received scholarships through the District of Columbia public schools, as well as high school students attending the Ellington School for the Arts, the Gifted and Talented Program, and the School Without Walls, for adult courses. This year 154 adult scholarships were awarded, and in addition, in fall 1983, thirteen teachers from the District of Columbia public schools received scholarships to attend the special course "Basic Computer Literacy." Fifty-eight scholarship students from the District of Columbia public schools attended Young Associate classes in 1983-84.

### The Cutting Edge of Science

This lecture series, conducted by eminent Smithsonian and university scholars, was offered free to area high school students proficient in science who were recommended by their science teachers. The series attracted over 3,000 students for five monthly lectures on such current and controversial topics as "Life in the Universe," "Genetic Engineering," and "The Continental Puzzle." This kind of outreach will be repeated.

### Smithsonian Kite Festival

The eighteenth annual festival open to members and the general public took place in April with hundreds of participants entering colorful kites of all sizes and shapes and representing countries from as far away as New Zealand—and thousands of interested spectators.

### Tuesday Mornings at the Smithsonian

This inexpensive ticket fee series of twelve weekly lectures, scheduled three times a year—spring, summer, and fall—is presented





Performers of the Central Traditional Orchestra of China presented a rare evening of Chinese classical and folk music in a program to complement the exhibition *Treasures from the Shanghai Museum: 6,000 Years of Chinese Art*, in the Evans Gallery, National Museum of Natural History. The troupe was the first traditional orchestra to visit the United States from the People's Republic of China. (Photograph by Robert de Milt)



A local high school student listens to the answer to his question at a lecture on space technology delivered by Kerry Joels, of the Office of Research Support, National Air and Space Museum. The lecture was part of "The Cutting Edge of Science," a free series open to highly motivated area students recommended by their high school science teachers. (Photograph by Lillian O'Connell)

by Smithsonian scholars, and preceded by complimentary coffee, tea, and rolls. Specifically designed to engage the interest of older citizens during daytime hours, the series is planned for all who are interested in learning more about art, science, history, foreign cultures, and politics. The lectures each attract between 250 and 400 people. This year a total of 11,600 attended.

### Minority Focus

The Resident Associate Program observed Black History Month by presenting "Langston Lives!," a program honoring poet Langston Hughes, specially assembled by the Rod Rogers Dance Company and guest artists and cosponsored by the Office of the Mayor of the District of Columbia and the D.C. Commission on the Arts and Humanities. Geoffrey Holder (described below) also performed. Discovery Theater opened its fall season with bilingual productions of *Journey to Dodoland*, presented in Spanish and English to accommodate Washington's population of Hispanic students. Discovery Theater also offered two productions to commemorate Black History Month: *Boley*, a new play by D.C. playwright Karen L. B. Evans, and *Critter Chat*, an enchanting performance of animal tales from Africa, the West Indies, and black America.

### Performances

The Smithsonian Educational Outreach Program contributed funding to performances by Samul-Nori, Korean dance-drummers; Kapelye, a revivalist klezmer band specializing in East European music (in conjunction with *Precious Legacy: Judaic Treasures from the Czechoslovak State Collections* mounted at the National Museum of Natural History); and "Bamboo and Silk: The Music of China," a concert by the Central Traditional Orchestra of China and introduced by the Deputy Chief of Mission to the Chinese Embassy, with a welcome and greetings from President Reagan conveyed by the Ambassador-at-Large for Cultural Affairs, Daniel James Terra. This concert, a Washington premiere, attracted a capacity audience with a sizable number from the Washington Chinese-American community.

### Collaboration with Community and Regional Organizations

For the second year, a five-evening subscription to the Folger Theatre's season of fine plays, embellished by special pre- and

post-performance events, was arranged for Resident Associates. Folger Shakespeare Library Director O. B. Hardison inaugurated the season with a distinguished lecture on Shakespeare as person and artist.

For the eleventh consecutive year, the Resident Associate Program cosponsored the nine monthly Audubon Lecture series with the Audubon Naturalist Society and the Friends of the National Zoo. This year's series attracted more than 615 subscribers and over 7,200 persons for all the lectures.

### Architectural Design Seminars

In March, the Washington Chapter of the American Institute of Architects, the Resident Associate Program, and the Virginia Polytechnic Institute and State University's Washington-Alexandria Center of the College of Architecture and Urban Studies joined to present the third in an annual series of architectural design seminars. These provide a forum for the study and application of basic design principles for professionals and students of a specific site in the Washington area. This year's focus was the "Portal" area, located at the 14th Street Bridge entrance to the city. Among the guest lecturers were eminent architects Kevin Lynch and Peter Cook.

### Telecommunications

In an innovative outreach effort, "The Telecommunications Revolution" fall course was linked by audio-bridge to several campuses of the California State University system each week for the duration of the course. The audio-bridge enabled the students to interact directly with instructors and students in Washington. A spectacular highlight of the summer term, "Toward 2001: Visions of America's Future," in collaboration with the American Society for Personnel Administration, was broadcast nationwide almost in its entirety by the C-Span television network, and this exposure resulted in hundreds of requests for transcripts and videotapes of individual lectures by such experts as Jeffrey Hallet and S. Norman Feingold.

### AWARDS

The Resident Associate Program received two awards from the National University Continuing Education Association, Region II, for its fiscal year 1984 programs "Architectural Design Sem-

inar: The Portal" and "The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections." The latter included a course, lecture, performance, and exhibition tours.

#### INTERNATIONAL ACTIVITIES

The Resident Associate Program was active in a variety of international arenas during the year. The President of Austria spoke at a reception during the course, "Vienna at the Turn of the Century" in February. As part of the Institution-wide celebration of the two-hundredth anniversary of the signing of the Treaty of Paris in 1783, the course "The American Revolution: New Insights and Revisions" was offered in the fall, as was "Britain's Best," a six-week series of double-feature films of the past fifty years; a seminar; free film; and a concert. The Treaty of Paris commemorative poster was made available for purchase to Resident Associate members.

The Resident Associate Program hosted an "Oktoberfest" evening of music and dance at the Embassy of the Federal Republic of Germany as the final element of its celebration of the German-American Tricentennial. Director Janet Solinger received the Officer's Cross of the Order of Merit from the government of the Federal Republic of Germany in February. In September, His Holiness the fourteenth Dalai Lama, spiritual and temporal leader of the Tibetan people, inaugurated the course "Tibetan Buddhism: Living Heart of the Land of Snow" in a special evening lecture; he was welcomed and introduced by Secretary Adams.

Thirty courses, lectures, seminars, films, and film series were cosponsored with embassies or the Woodrow Wilson International Center for Scholars and/or featured international speakers. Six performances starred international performing artists or troupes.

#### COURSES

The lively and provocative curriculum of arts, sciences, humanities, and studio arts for educated adults—offered four terms per year—provides opportunities for serious study with Smithsonian and visiting scholars during evenings, noontimes, mornings, and weekends. In 1983–84, 173 lecture courses were offered, and attendance reached 57,100.

Among the best attended fall courses were "The Listener's Art," which focused on guided interpretations of classical music; "The Precious Legacy: Jewish Life and Art in Czechoslovakia," held in

conjunction with the exhibition installed at the Evans Gallery of the National Museum of Natural History, organized by the Smithsonian Institution Traveling Exhibition Service. "Frank Lloyd Wright: America's Master Builder," a course in which many schools of architecture cooperated, featured noted guest lecturer Bruce Brooks Pfeiffer, Director of the Archives of the Frank Lloyd Wright Foundation, and Roger Kennedy, Director of the National Museum of American History, and drew accolades in the winter term. Best-selling author Paul Starr lectured for the course "The Face of American Medicine," planned in conjunction with the National Museum of American History exhibition *Pain and Its Relief*. The year's outstanding guest lecturers included world-class photographers Jay Maisel and Barry Seidman; philosopher and author John Searle; Truman scholars Robert Donovan, Walter LaFeber, and Harold Saunders; and noted constitutional authorities Max Isenbergh and Joseph L. Rauh, Jr. New courses explored facets of computer literacy and computer animation. A Foreign Language Program was launched, featuring classes in Spanish, French, and Italian.

#### STUDIO ARTS

The studio arts program seeks to enhance appreciation of age-old crafts, keeping alive techniques now rapidly disappearing from the modern world, as well as introducing contemporary arts and crafts. Courses and intensive workshops in such areas as drawing, sculpture, photography, and needlework were offered seven days a week, morning, noon, and evening. The program was the recipient of assistance from the Hechinger Foundation given for the purpose of enriching the studio arts curriculum in the area of fine carpentry and woodworking.

An expanded selection of workshops and courses were offered in fiscal year 1984, including sessions on bookbinding, using a newly acquired turn-of-the-century bookbinding press; archival matting and framing, a highly specialized area of archival studies taught by the head of exhibition matting and framing at the National Gallery of Art; the art of perfumery; Ikebana, Japanese flower arranging; and several open studio classes in etching and figure drawing.

A special lecture/demonstration by master jewelry designers in October, cosponsored with the Embassy of Belgium and augmented by a private viewing of the exhibition, *Belgium Jewels*

Today at the Inter-American Development Bank, filled quickly. Another successful workshop, "The Quick Self Portrait," was offered in March in conjunction with the National Portrait Gallery exhibition, *Artists By Themselves*. In all, 220 programs were presented throughout the year, with an attendance of 13,500.

#### LECTURES, SEMINARS, SYMPOSIA, FILMS

Single lectures, intensive one- and two-day seminars, and scholarly symposia led by distinguished authorities addressed a wide range of cultural topics during the year. Individual films and film series featuring foreign cultures, saluting well-known artists, or highlighting different techniques were an expanding feature of the program.

#### Lectures

Notable speakers and guest artists included computer animation expert Judson Rosebush; Chairman of the Board of Trustees of the Seychelles Islands Foundation Maxime Ferrari; author and adventurer Arlene Blum; Professor of the Year Peter Beidler (co-sponsored by the Council for Advancement and Support of Education); Director of the National Museum of Natural History Richard Fiske; and choreographer, artist, designer, and actor Geoffrey Holder. "A Video Visit with Dumas Malone and Thomas Jefferson" was the occasion for the Resident Associate Program's first public use of the new Novabeam video projector. More than 28,600 persons attended 106 Resident Associate Program lectures in fiscal year 1984.

#### Seminars and Symposia

Nineteen intensive seminars and symposia enabled 2,200 participants to examine a rich selection of subjects in depth. Eminent scholars and professionals discussed the history of the Roman emperors, fashion design, the rise and fall of the Aztecs, the social and scientific implications of advances in artificial intelligence, the genetics revolution, gemstones and jewels, and Harry S Truman: "The Man and His Years."

#### Films

*Berlin Alexanderplatz*, a two-day film marathon, was screened for a sell-out audience in December and received critical accolades as

Washington film coup of the year. *Memories of Old Beijing*, a Chinese-produced international award winner, was also extremely well received. The Washington premiere of the new opera film, *Parsifal*, was introduced to a full house by former *Washington Post* music critic Octavio Roco. A riveting Australian documentary about a remote highland area in New Guinea in the 1930s, *First Contact*, was introduced by the filmmakers. January audiences enjoyed a double booking of an eloquent film tribute to Marc Chagall, *Homage to Chagall*. Nadine Gordimer's *South Africa*, the Washington premiere of seven new films based on Gordimer's stories, attracted capacity crowds. Mel Blanc, creator of Bugs Bunny's voice, drew over 1,200 participants to the Departmental Auditorium, as he reminisced about his fifty-year career; Blanc's appearance was included in a "Smithsonian World" feature aired in fall 1984. In the spring, actor William Powell was commemorated in a series of classic films in which he starred. In conjunction with the twenty-fifth anniversary of Alaska's statehood, a new documentary on Alaska's Denali National Park, where Mt. McKinley looms above the wilderness, was screened. *Simone de Beauvoir*, a cine-portrait, provided a fascinating glimpse into the mind and thoughts of the famous author and philosopher. Films shot from the space shuttle thrilled December audiences. *Amadeus*, the spectacular film version of the stage hit, was screened in 70mm on the IMAX screen at the National Air and Space Museum in a benefit premiere in September. Over eighty film showings attracted 22,500 people—members and the general public.

#### PERFORMING ARTS

An outstanding season of theater, music, and dance was presented in the first year the Resident Associate Program took over the majority of Smithsonian performing arts events requiring tickets. Many were held in conjunction with Smithsonian museums; others were selected for special quality and popular appeal. The noho Theatre Group of Japan appeared in March, cosponsored with the Japan-American Society of Washington, and the Gewandhaus Bach Orchestra of Leipzig, a virtuoso ensemble drawn from the ranks of the famous Gewandhaus Orchestra in its first North American visit, appeared in February.

The Emerson String Quartet played to full houses in a series of memorable concerts held in the Grand Salon, Renwick Gallery, the first season under the aegis of the Resident Associate Program.

Smithsonian Salutes Washington Dance, a series of performances celebrating the vitality of the Washington dance scene, culminated in "Dancers' Choice," in which established stars selected the new dancers.

Summer outdoor concerts in the courtyard of the National Museum of American Art / National Portrait Gallery featured outstanding jazz, classical, bluegrass, and ragtime music and attracted capacity audiences, as did fall and winter brunch concerts held in the National Museum of American History. John Eaton performed the compositions of Porter, Arlen, Gershwin, and Ellington in eight informative and entertaining concerts, his sixth season of jazz piano for the Resident Associate Program. In the 1983-84 season, 89 performances were presented, with more than 26,000 members and the general public in attendance.

### TOURS

On-site learning experiences are organized for small groups in the fields of art, architecture, archeology, history, industry, and science, lasting from one hour to three days. Tours are designed to appeal to a wide variety of age groups, financial circumstances, and interests, and range in content from Virginia winemaking to the Baltimore Museum of Art's fall session, to Tall Ship cruises on the Chesapeake Bay. Art and architecture continue to be among the most popular subjects, with specialized science tours gaining steadily.

For the first time, members attended the Spoleto Festival in Charleston, South Carolina, a tour featuring concerts, lectures, and local history. An overnight art study tour to New York's Soho and Wall Street and one tour led by six architects commenting at the sites of their own work were filled. Tours to historic areas included a survey of Baltimore markets, regional counties, and Civil War sites. An enthusiastic group attended "Visually Impaired in the Seeing World" led by the Washington Ear Radio Reading Service. In a joint venture with the National Air and Space Museum, the Goddard Space Flight Center, and the Space Telescope Science Institute at Johns Hopkins University, space telescope facilities were toured, and, on a rare occasion, participants—led by National Air and Space Museum staff—traveled to southern Virginia to witness the solar eclipse in May. Natural history tours, especially those on birding and botany, were quite popular. Free



tours, most led by museum docents, attracted over 6,500 participants during the year. In 1983–84, 724 tours took place, with total attendance by more than 27,300 people.

#### YOUNG ASSOCIATE AND FAMILY ACTIVITIES

Through Young Associate and Family Activities, the Smithsonian's resources are enhanced for young people, ages four to fifteen, and their parents. Classes, workshops, monthly free films for families, tours, and performances exploring history, art, science, and studio arts are tailored to their ages and interests. Innovative parent-child classes and workshops enable parents and children to work together on projects of mutual interest, as in the class "Urban Nature Study" held on the Mall; "Geology Close-Up," taught by a geologist in the Naturalist Center of the National Museum of Natural History; and "Scissor Art," a workshop in producing paper-cut art for Hanukkah.

In November, the first Resident Associate Program event exclusively for teens was well received—"Science Fiction Writers Tell All: Meet the Authors," and the first grandparent-child event, "Granny's Kitchen," also drew enthusiastic participation. "Renaissance Sampler," a parent-child tour planned in collaboration with the Folger Shakespeare Library, incorporated history, drama, dance/movement, and music into a behind-the-scenes theater class.

For the second season, Summer Camp classes met all morning, every weekday for one, two, or three weeks, in July and August. Classes were team taught, combining the talents of teachers of different disciplines. One outstanding example was "TV Smithsonian: The Quad," in which a video production expert and a painter/designer/sculptor teamed for a class mural painting project. The mural was painted on the construction barricade surrounding the Quadrangle's future Center for African, Near Eastern, and Asian Cultures, the process being filmed by class members. The story of the completed project was aired on a Metromedia television news program. In 1984, over 180 Young Associate and Family programs attracted an attendance of more than 12,900 individuals.

#### Discovery Theater

Discovery Theater, presenting entertainment and educational experiences for young people and their families, conducted its first

full season under the auspices of the Resident Associate Program from October through June. Two performances a day were presented, Wednesday through Sunday. The series theme for 1983–84 was "Myths, Fables, Legends, and Tales." Ten performing groups demonstrated the full spectrum of theatrical styles, including mime, puppetry, dance, music, storytelling, and original plays. Among the highlights were a live stage performance by the local Children's Radio Theatre, a marionette version of *Hansel and Gretel* by David Syrotiak's National Marionette Theatre, and performances by two acclaimed Canadian companies—Kaleidoscope Theatre and Theatre Beyond Words. In order to facilitate an educational as well as entertainment experience for young people, Learning Guides, which include information about performances, suggestions for classroom activities, a listing of resources, and other Smithsonian activities, were produced by Smithsonian staff and furnished free of charge to all leaders who brought groups to the theater. Over 47,300 individuals attended the 369 performances during the season; approximately 75 percent consisted of groups from local school systems.

#### VOLUNTEERS

A total of 425 volunteers provided invaluable assistance to the program, monitoring films, special events, lectures, courses, and tours, and performing vital office duties. The 94 volunteer office workers represent the equivalent of six full-time staff members, and the hours contributed by monitor volunteers amount to the work of six full-time staff members. Office volunteers were honored at a luncheon on May 3, and all volunteers were feted at a special reception at the Arts and Industries Building Rotunda on September 20.

#### SUMMARY

Fiscal year 1985 marks the Resident Associate Program's twentieth anniversary. During the coming year, many observances are planned that will lend special enhancement to the program. In addition the program will continue to present museum-quality educational and cultural activities and add new projects as it is able, with consideration of staff size, Smithsonian facilities, and budget. The Resident Associate Program will continue to endeavor

to reach new audiences, to increase membership by emphasizing modest growth, keeping service to members at a premium, and to increase income without sacrificing quality. The program will also continue its outreach activities for the Washington area community.



Two dozen youngsters, gathered around Uncle Beazley, the popular dinosaur model, served as the supporting cast for actress Sandy Duncan during the filming of a Smithsonian television public service announcement produced by the Office of Public Affairs.

## PUBLIC INFORMATION

LAWRENCE E. TAYLOR,  
COORDINATOR

### *Office of Public Affairs*

The Office of Public Affairs (OPA) participated in and helped coordinate publicity for several historic events during the year, including the announcement of Robert McC. Adams's selection as the Smithsonian's ninth Secretary and the subsequent installation ceremonies, the observance of Secretary Ripley's twentieth anniversary at the Institution, the launching of the Smithsonian's first major venture in public television, and Institution participation in the 1984 Edinburgh Festival, the world's oldest and largest annual cultural festival.

The Board of Regents unanimously elected Dr. Adams as the Smithsonian's ninth Secretary on January 23, 1984. Following the vote, the Office of Public Affairs organized a news conference, which was attended by representatives of the Board of Regents and the Search Committee, Secretary Ripley, Secretary-designate Adams and reporters and photographers from the national, international, and local media.

In February, Secretary Ripley celebrated his twentieth anniversary at the Smithsonian with a reception for the entire Smithsonian staff at the National Museum of Natural History. To commemorate the anniversary, public affairs staff members produced a special six-page supplement on the events and accomplishments of the Ripley years for the February issue of *The Torch*, the

monthly newspaper for employees and friends of the Smithsonian, and prepared a chronology of the Ripley years for the media.

The Office of Public Affairs planned and implemented a public relations program for the ceremonies marking the installation of the ninth Secretary September 17 on the National Mall. The historic event was given broad coverage in the media and resulted as well in major articles in the national press on Secretary Ripley and the new Secretary. In addition, the OPA produced an expanded issue of the monthly staff newspaper to commemorate the occasion.

The Smithsonian's new television series, "Smithsonian World," coproduced with the Washington, D.C., public television station WETA-TV with a \$3.5 million grant from the James S. McDonnell Foundation, premiered in January to positive reviews from the media and the public. Public affairs staff members provided "Smithsonian World" staff with background materials and information and coordinated for the Institution the extensive publicity and advertising campaign that accompanied the series.

A major new project began in the OPA with a grant from the Educational Outreach Fund to encourage visits to the Smithsonian by members of minority communities. Emphasizing the theme "Explore Your Heritage," the OPA staff produced both an illustrated brochure and a 30-second public service announcement (PSA) for television, featuring areas of the Institution of particular significance to members of the Black community as the first effort in the project. The brochure was distributed to schools, churches, and civic organizations in the Washington, D.C., metropolitan area, to tourists at the information desks of the museums, and in response to requests generated by the television announcement. Colonel Guion "Guy" Bluford, the first Black American astronaut in space, appeared as narrator in the PSA.

As part of the outreach project, advertisements were placed throughout the year in Washington/Baltimore Afro-American newspapers calling attention to special exhibitions and activities related to Black History Month and holiday seasons and to promote a performance sponsored by the National Museum of American Art to benefit a future Black History Festival. The latter advertisement also appeared in the *Washington Post*.

As part of the office's continuing mission to encourage visits to the Smithsonian, the OPA produced a television public service announcement package (a 30-second PSA and a 20-second PSA) aimed specifically at showing the Institution's exhibits that children can touch and participate in. Noted television and stage actress Sandy

Duncan became a real-life Smithsonian Peter Pan as forty children, ranging in age from 3 to 17, followed her lead in the filming. The hard-working cast labored from dawn to dusk just as any Hollywood crew would do to complete the TV announcements, which were distributed to the three hundred largest television stations in the country, reaching every state.

Public affairs staff members also produced and placed advertisements in the *Washington Post* every two weeks during the summer calling attention to the Smithsonian's extended summer hours and encouraging visitors to "Spend an Evening" at the Smithsonian during those relatively uncrowded times. Ads also appeared during one week of extended hours in April. Attendance at the Smithsonian in April 1984 increased by more than 15 percent over 1983, and overall attendance for the year was expected to break last year's all-time record high.

The Office of Public Affairs is the central Smithsonian clearinghouse for reporters from newspapers, magazines, television, and radio. In fiscal year 1984, the OPA issued more than five hundred news releases on Smithsonian exhibitions, events, and activities; staff members answered hundreds of phone calls from members of the print and electronic media and arranged dozens of interviews with Smithsonian officials, scholars, scientists, and curators. The office also provided assistance to other Smithsonian bureaus and offices in the planning and implementation of major publicity programs. To publicize the Edinburgh Festival, which included the exhibition *Treasures from the Smithsonian Institution* as well as 32 concerts given by nine performing groups and individual artists, the Office of Public Affairs cooperated with the Office of the Assistant Secretary for Public Service in a media campaign that resulted in international media coverage for the Smithsonian's Edinburgh programs.

Articles covering Smithsonian programs in Edinburgh appeared in the *New York Times*, the *Washington Post*, the *Christian Science Monitor*, the *Times* and the *Sunday Times* (London), the *Glasgow Herald*, *The Scotsman* (Edinburgh), and the *International Herald Tribune*. Smithsonian representatives also were interviewed on BBC radio and television and on local media outlets in Scotland, as well as by the national television and radio networks of Australia, Ireland, and South Africa.

In an effort to reach a more diverse audience than those at past Edinburgh Festivals, the Smithsonian participated in an experiment that took Festival concerts to the Scottish city's housing projects

and working-class neighborhoods; publicity of this effort by an on-site OPA staff member helped to offset criticism by the Edinburgh city government that the Festival was too "elitist."

Other major publicity campaigns planned and conducted by the OPA in conjunction with other Smithsonian bureaus during the year focused on the exhibition *James McNeill Whistler at the Freer Gallery of Art*, an exhibition organized in celebration of the one hundred and fiftieth anniversary of Whistler's birth; the Eighteenth Annual Festival of American Folklife; and the Smithsonian Institution Traveling Exhibition Service exhibition, *The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections*. The office also planned workshops on public relations and organized and helped coordinate publicity for the American Association of Museums annual meeting, which was held in June in Washington, D.C.

The office assisted with the media arrangements for an April conference for North American journalists on "The Challenge to Our Cultural Heritage: Why Preserve the Past?" The conference was sponsored by UNESCO and the Smithsonian with cooperation from the National Trust for Historic Preservation and the United States Committee of the International Council on Monuments and Sites. The conference was covered widely by the media, including the *Christian Science Monitor*, the *Boston Globe*, *Newsweek*, and United Press International.

The Smithsonian News Service, a free monthly feature-story service produced by the OPA for daily and weekly newspapers nationwide, completed its fifth successful year of operation. In fiscal year 1984, 1,554 newspapers (808 dailies and 746 weeklies) in all fifty states and the District of Columbia regularly used the News Service's monthly articles covering Smithsonian activities in the arts, sciences, and history. These papers have a total combined circulation of 40 million and a potential readership of 100 million. The prestigious *Los Angeles Times* joined the list of Smithsonian News Service subscribers, as did smaller newspapers such as the *Troublesome Creek Times* in Hindman, Kentucky, and a number of major newspapers, such as the *St. Louis Post Dispatch*, began using color artwork with the stories on a regular basis. International usage of the News Service expanded with the addition to the subscriber list of the *Japan Times* of Tokyo. The News Service continued to increase its efforts to reach out to special constituencies in a number of ways: The Braille Institute of Los Angeles began featuring News Service stories in the magazine that it distributes free of charge to visually handicapped United States citizens, and stories on design



for disabled individuals and on Black scientists highlighted the "Decade of Disabled Persons" and Black History Month, respectively.

During the year, the News Service distributed forty-eight features covering such major newsworthy and timely subjects as the four-hundredth anniversary of the first manned balloon flight; the preservation of Aldabra, a tiny tropical island and natural laboratory in the Indian Ocean; the space telescope; presidential elections and campaigns; the one-hundredth anniversaries of the birth of Harry S Truman and of the Statue of Liberty; the Olympic Games; and American folk art.

Recognizing the outstanding quality of the News Service, the National Association of Government Communicators awarded the first, second, and third prizes in the "feature" category of its nationwide "Blue Pencil Contest" to News Service stories. The Smithsonian monthly staff newspaper, *The Torch*, also received a first place in the same contest in the in-house newspaper category; *Research Reports*, a three-times-a-year periodical describing Institution-related research in the arts, history, and science, received second place in the newsletter category. These publications, as well as others produced by the OPA, also won major awards in writing and design contests sponsored by the American Association of Museums and the Society for Technical Communications.

In addition to the new *Explore Your Heritage* brochure, the office produced a new 32-page publication, titled *Science at the Smithsonian*, which describes the process and benefits of the Institution's scientific research programs. The Smithsonian's general information *Welcome* brochure was revised in a new format with an easy-to-read map, and the *Guide to the Smithsonian for Disabled Visitors* was also updated. To aid journalists covering Smithsonian activities, the office revised the publication *The Smithsonian Institution—Yesterday and Today*, a 100-page general reference booklet on the history, organization, and programs of the Institution.

As construction proceeds on the Center for African, Near Eastern, and Asian Cultures, the Office of Public Affairs continues to work with other bureaus at the Institution to formulate public relations programs and policies and to publicize noteworthy events connected with the center.



Art Buchwald, the noted humorist, was master of ceremonies at festivities marking RIF (Reading Is Fundamental) Week. (Photograph by Rick Reinhard)

## READING IS FUNDAMENTAL, INC.

MRS. ELLIOT RICHARDSON, CHAIRMAN  
RUTH GRAVES, PRESIDENT

Reading Is Fundamental, Inc. (RIF), a private nonprofit organization, celebrated its eighteenth anniversary in 1984 as the nation's largest reading motivation program. Since 1966, when RIF was founded by the late Mrs. Robert McNamara, this program has put more than 58 million books into the hands of young people. Today there are 3,000 RIF programs, each staffed by volunteers, in all fifty states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam.

Reading Is Fundamental addresses an urgent problem—the fact that record numbers of young people are not learning to read and that many more, who can decipher words, simply do not choose to read. There is evidence that RIF is altering the reading habits of America's children. In a 1983 survey of RIF projects, local project leaders reported that the program has significant long-term effects on children's interest in reading. Several other benefits of the RIF program were also reported: RIF improves children's self-image, increases children's use of the library, improves attitudes toward school, helps teachers motivate children to read, and increases parent involvement in the school.

### The RIF Method

Two principles underlie the RIF method of motivating youngsters to read. The first is that each child be allowed to choose his own book—a factor that inclines him to take the pains to read it. Second, each child gets to keep the book he chooses, to reread and ponder and share with family and friends. Book ownership has

multiplied RIF's impact by drawing the entire family into the act of reading. Study after study has shown the significant relationship between reading achievement and books in the home.

In addition, RIF relies on its volunteers—some 96,000 at last count—to lead children into successful reading experiences. These local citizens volunteer millions of manhours to choose and order those books likely to appeal to local children, raise money to pay the project's operating expenses and some or all of book costs, and devise intriguing ways to tempt youngsters to read more.

### The Diversity of the RIF Program

The RIF program is vitally heterogeneous. On the plains of Kansas, rural schoolchildren hold a RIF young authors' conference where they write, illustrate, and bind their own books. On the floor of the Grand Canyon, the children of the Havasupai tribe hear a storyteller chant ancient legends of earth and sky, as part of a RIF book distribution. In the drab, gray surroundings of Los Angeles' Skid Row, youngsters discover the enchantment of children's books through a RIF project at a child development center. In an intensive care unit of a New York Medical Center, the mother of a seven-year-old child finds what she describes as "something active and positive" to do for her son—reading aloud his RIF book while the boy undergoes kidney dialysis.

RIF books are especially treasured by the children of migrant farm workers. In seventy projects from Maine to Florida, some 71,242 children carry their books from town to town as their parents follow the harvest. An added bonus: semiliterate mothers and fathers who discover the magic world of reading through their children's RIF books. In short, the RIF program serves children at more than 10,000 sites—public and private schools, libraries, Indian reservations, hospitals, schools for the handicapped, trauma centers, housing projects, boys' ranches, migrant worker camps, and juvenile detention centers.

### RIF: A Public/Private Partnership

The basis for RIF's rapid growth over the last eighteen years is the broad support the organization has received from both public and private sectors. In 1976 Congress created the Inexpensive Book Distribution Program, modelling it on RIF. Reading Is Fundamental continues to operate this program under a grant from the Department of Education. Since the Ford Foundation gave RIF its start with a sizable grant, the private sector has been generous to this grassroots reading motivation program. Today, some 6,200 busi-

nesses and organizations support RIF projects.

To stretch its resources further, RIF has formed partnerships with corporations, foundations, the media, book publishers, and civic and youth groups. Over the past thirteen years, the broadcast and print media have given more than \$20 million in free time and space to RIF's campaign to promote reading. Many of RIF's publications for volunteers and parents have been underwritten by corporations and foundations. For example, RIF's highly popular pamphlet for parents on how to promote reading in the home was published under a grant from a children's clothing manufacturer, General Sportwear. More than a million parents have used this guide to lead their preschoolers and school children into enjoyable reading experiences.

Recognizing the importance of RIF in encouraging children to read, some 350 booksellers and publishers give RIF's local programs the best possible discounts and services, advise RIF on trends in juvenile literature, and donate books for special occasions.

RIF's chairman, president, and board members regularly speak before a variety of audiences on the importance of creating a literate citizenry. On International Literacy Day, RIF chairman Mrs. Elliot Richardson joined Secretary of Education Terrel Bell and former U.S. Senator James Symington as keynote speaker at a Jefferson Memorial ceremony, where she told listeners: "We need to motivate children to want to learn. For unless a child wants to learn the most adept teaching techniques will run into a stone wall."

Since 1969 all U.S. Commissioners of Education and a host of service, literacy, education and youth organizations have endorsed the RIF program. Included among those organizations are the American Association of School Administrators, the Association for Library Services to Children of the American Library Association, the National Catholic Education Association, the National Association of Elementary School Principals, and youth clubs such as the Boy's Club of America, Girl Scouts of America, and Campfire Girls, Inc.

#### Highlights of 1984

In May 1984 RIF held a national celebration of reading called "Reading Is Fun Week." Young authors' conferences, reading competitions, book fairs, and many other special events took place in local RIF projects across the country. For their work in promoting literacy, thousands of local citizens and organizations were honored with the Margaret McNamara Certificate of Merit, com-

memorating RIF's founder. To cap the week, RIF held a book distribution for 600 children at the Washington, D.C., convention center, as part of the American Booksellers Association convention, the largest English-language book convention in the world. Art Buchwald, humorist and syndicated columnist, presided over the event and thirty book publishers donated 1,500 books for the occasion.

The children were entertained by Sesame Street's Kermit Love; authors and illustrators Ashley Bryan, John Langstaff, and Norman Bridwell; a Ringling Brothers clown; mimes; and the surprise of the day, television star "Mr. T.," who urged the children to stay in school and "read, read, read."

In 1984 New American Library (NAL) established a donation program with RIF to mark the twenty-fifth anniversary of NAL's Signet Classics imprint. For every Signet Classic sold in 1984, one cent was earmarked to RIF. The publisher inaugurated the program with an initial donation of \$25,000, presented to RIF at the American Booksellers Association convention. Moreover, NAL encouraged booksellers to donate one cent for every Signet Classic sold at the retail level, and agreed to match each penny with an additional penny. Since more than 250 Signet Classic titles are in print, including George Orwell's *1984*, this contribution is expected to be significant.

During the year, RIF expanded its efforts to involve parents in their children's learning and reading. This parent outreach followed naturally from the fact that some 36 percent of RIF's volunteers are parents.

A grant from the MacArthur Foundation enabled RIF to publish a guide, *Books to Grow On*, tailored to meet needs cited by parents in an earlier survey conducted by RIF. In 1984, the General Electric Foundation provided RIF with funds to hold a series of six parent workshops. Conducted by educators, authors, and children's literature experts, these workshops are being held in six cities nationwide and address such topics as how to read aloud to a child, reading activities for families to share, and how to match books to children's ages and interests.

A RIF puppet show, produced by Sesame Street's Kermit Love and underwritten by Lever Brothers, toured three major cities—Chicago, St. Louis, and Kansas City—reaching nearly 2,000 children. The show featured Love's latest creation, Snuggle the Bear, a bear who reads and cares about reading. Love, who also created Sesame Street muppets Big Bird, Mr. Snuffleupagus, and Oscar the Grouch, left the children with this message: "Reading is fun

and it's not hard. It's as easy as making instant soup. All you add is imagination."

At a Parents' Rally held at the International Reading Association's (IRA) annual convention, RIF held a special book distribution and offered a workshop for parents, entitled "The RIF Experience." The event culminated in a play produced by youngsters from RIF projects.

Last year, RIF was selected to receive the Valley Forge Certificate for Excellence in Community Programs from the Valley Forge Freedoms Foundation. During the last eighteen years, RIF and members of its staff have won dozens of private and government awards, including the highest civilian award made by the President of the United States to RIF's founder, Margaret McNamara, for her work in promoting literacy.

In 1984, a Boston corporation started a new kind of RIF project. The company—FMR Corp., of Fidelity Investments—donated funds to hold a spotlight distribution for the children of its 2,000 employees. Corporate executives and Harvard University administrators viewed the event with an eye to replicating it.

### Keeping America's Young People Reading

In 1984 RIF was featured in two widely read publications and one syndicated column. As a result, thousands of parents and concerned citizens from all walks of life wrote RIF headquarters asking how they could ensure that their youngsters became avid readers. A "Frustrated Mother" from Connecticut had written Ann Landers about her two children. Though they were "bright," she confided, "reading a book would never occur to them." Landers, in her reply, referred to RIF as an "organization that speaks to your needs exactly." Shortly thereafter, RIF was deluged with mail from parents whose children had also turned their backs on books. Articles about RIF in *Parade* magazine and the Mini Page, a newspaper insert for young people, also resulted in a barrage of mail from parents and from groups seeking information on how to start reading motivation programs.

Over the coming year, RIF will continue to forge new coalitions to ensure that America's young people keep reading. As Ruth Graves, RIF president, said in a speech to the book division of the International Periodical Distributors Association (IPDA): "Despite the dismal statistics on literacy, children are demonstrating daily that they are interested in acquiring knowledge and skills if the process is fun."



Jimmy Carter came to the Wilson Center March 5, 1984, for an evening dialogue on the modern presidency. Shown here with the former President are Senator Mark Hatfield (left), who moderated the discussion, and Jack Walker, professor of political science at the University of Michigan.



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 fourteen 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 fifty 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 non-specialized national audience through *The Wilson Quarterly*, which 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 entitled History, Culture, and Society, but also in special programs in Russian and Soviet studies (the Kennan Institute), Latin American studies, international security studies, Asia studies, a program in American society and politics, and a European program. 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 1984, for example, the center brought together scholars from many different disciplines, members of Congress, representatives of the executive branch, businessmen, journalists, military experts, writers, politicians, educators, and diplomats to consider a variety of issues, examine current questions, enjoy celebrations, and participate in evaluative discussions.

Increasingly, people from different regions of America meet and interact with foreign scholars and the growing intellectual community of Washington itself. In January 1984 the center sponsored a major conference in cooperation with the Folger Shakespeare Library on "The Treaty of Paris in a Changing States System." Speakers included Claude Fohlen, professor of American history, Sorbonne, and former Wilson Center Fellow, on "A French View of the Treaty of 1783"; A. P. W. Malcolmson, of the Public Record office of Northern Ireland on "Irish Responses to the Treaty"; Peggy Liss on "The Impact of the Treaty on the Spanish Empire"; and Alison Olson, professor of history, University of Maryland, on "Later British Responses to the Treaty."

At an all-day workshop on "Cinema and Society in the Developing World," organized by the center's Latin American and History Culture and Society programs, film critics considered the impact of the popular cinema on national identity in Third World countries as well as the powerful outside influence of Hollywood. Speakers were Pat Aufderheide, freelance film critic; Mbye Cham, professor of African-Studies, Harvard University; and film critics Luis Francis and Chidananda Das Gupta, Wilson Center Fellow.

The center's Kennan Institute for Advanced Russian Studies organized a major conference on "U.S.-Soviet Exchanges," assessing the variety of exchanges that have continued between the two countries despite continuing tensions. Joining foundations and government officers were administrators of scholarly exchanges, of

bilateral science and technology exchanges, of programs that promote dialogue between United States and Soviet citizens, and of Russian language programs. President Reagan, speaking to the group in the White House, praised the efforts of the conference and supported the continuation of exchanges between the two superpowers.

One hundred specialists in Southeast Asia met at the center in March 1984 to evaluate changes in research over the last decade, and to make plans for more practical results. Participants included Leonard Unger, former U.S. ambassador to Laos, Thailand, and Taiwan, now professor of diplomacy at the Fletcher School; Benedict Anderson, associate director of the Southeast Asia Program, Cornell University; and William Frederick, professor of history, Ohio University.

A two-day conference on "Policy Dialogue on the United States and Colombia in the 1980's" brought together a cross-section of high-level opinion leaders from the United States and Colombia including: Honorable Alvaro Gomez Hurtado, vice-president and ambassador of Colombia; Rodrigo Botero Montoya, editor of *Estrategia*; Howard Howe, vice-president, Wharton Econometrics; Gabriel Melo Guevara, director, El Siglio; Frederick D. Seeley, senior vice-president, J. Henry Schroder's Bank; Honorable Viron P. Vaky, Research Professor in Diplomacy, Georgetown University; Honorable Michael D. Barnes, United States Representative from Maryland; Fernando Cepeda Ulloa, dean of the Law Faculty, Universidad de los Andes; Bruce M. Bagley, associate director, Latin American Program, Johns Hopkins University; and Marco Polacios Roza, cultural adviser, Banco Popular.

As an intellectual contribution to the various events celebrating the "Harry S Truman Centennial," the center held a two-day symposium in cooperation with the National Museum of American History. Among the speakers and commentators were Robert Griffith, professor of history, University of Massachusetts; Alonzo L. Hamby, professor of history, Ohio University; Craufurd D. Goodwin, dean of the Graduate School, Duke University; Nelson Lichtenstein, professor of history, Catholic University; William H. Chafe, professor of history, Duke University; Paul Boyer, professor of history, University of Wisconsin; David Rosenberg, Nation Defense University, Washington, D.C.; Bruce Kuniholm, Institute of Policy Studies, Duke University; Robert McMahon, professor of history, University of Florida; John Gaddis, professor of history, Ohio University, Athens; Charles Maier, professor of his-

tory, Harvard University; John W. Dower, professor of history, University of Wisconsin; Barton Bernstein, professor of history, Stanford University; Clark Clifford, former personal adviser to President Truman; Robert Donovan, former Wilson Center Fellow and author of *Conflict and Crisis* and *Tumultuous Years*, both on the Truman presidency; and I. F. Stone, journalist and author of *The Truman Era*.

In addition to these large conferences and workshops, the center sponsors small, informal discussions that bring together statesmen and scholars—an evening on “The Modern Presidency” with former President Jimmy Carter and a small dinner for the incoming president of Panama, Nicolas Ardito Barletta, who had previously participated in many events at the center.

The center’s fellows continue to come from all over the world, from many disciplines, and from many areas of the United States. Among its 1984 fellows and guest scholars were Persio Arrida, professor of economics, Pontifica Universidade Catolica de Rio de Janeiro; Shlomo Avineri, Herbert Samuel Professor of Political Science, Hebrew University of Jerusalem; Warner Bement Berthoff, professor of English and American literature, Harvard University; Mary Brown Bullock, director of the Committee on Scholarly Communication with the People’s Republic of China’s National Academy of Sciences; Betsy Erkkila, assistant professor of history, University of Notre Dame; Mario Garcia, associate professor of history and Chicano Studies, University of California, Santa Barbara; Michael Howard, Regius Professor of Modern History, Oxford University; Samuel Huntington, Frank G. Thompson Professor of Government, Harvard University; Byong-ik Koh, professor of history, Hanlim College, Ch’unch’on, Korea; William Young Smith, USAF (Ret), former deputy commander in chief, U.S. European Command; Peter B. Reddaway, senior lecturer in political science, London School of Economics; Massimo Salvadori, professor of contemporary history, University of Torino, Italy; and Robert C. Tucker, director of the Russian Studies Program, Princeton University.

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.

JOHN F. KENNEDY CENTER  
FOR THE PERFORMING ARTS

ROGER L. STEVENS, CHAIRMAN

The John F. Kennedy Center for the Performing Arts, organized by an Act of Congress in 1958 as a self-sustaining bureau of the Smithsonian Institution, is both a presidential memorial under the aegis of the Department of the Interior and a performing arts center directed by a board of trustees whose citizen members are appointed by the President of the United States. Six members of Congress and nine designated ex officio representatives of the executive branch complete the roster of forty-five members. This annual report of the center's activities encompasses all the programming presented in its five theaters by the National Symphony Orchestra, the Washington Opera, Washington Performing Arts Society, and American Film Institute, as well as by the Kennedy Center itself.

During its 1983-84 season, the Kennedy Center observed a number of milestones in its programming, its theater operations, and its legislative history. The renovation of the Opera House was completed at a cost of \$2 million, raised entirely from private sources. After thirteen years of continuous use by the world's leading artists and companies, the Opera House that had been inaugurated with *Mass* was rededicated by another Leonard Bernstein premiere—*A Quiet Place and Trouble in Tahiti*. Immediately following this American premiere, the brilliant Vienna Volksoper continued the tradition of outstanding companies from abroad that have been presented to America at the Kennedy Center.

The observance of the twentieth anniversary of the death of President John F. Kennedy was marked by a moving memorial concert on November 22, 1983. Not only was the late President actively involved in fundraising on behalf of the National Cultural Center before his death, but Congress also chose to designate the center as a "living memorial" in his honor. When Congress unanimously voted in 1964 to rename the center for John F. Kennedy, it reaffirmed the specific performing arts and public service programming mandate under which the center continues to operate.

Unlike other regional performing arts centers, the Kennedy Center is specifically directed by its authorizing legislation to present a broad array of performing arts programming, including theater, music, opera, ballet, and dance, and to sponsor educational and public-service activities in order to provide the broadest possible public access. The center must, however, annually seek millions of dollars in private contributions in order to meet these goals since no direct federal appropriations are provided to fulfill this mandate of Congress.

The Ninety-Eighth Congress enacted legislation restructuring the center's original construction debt. When, in 1964, Congress created the Kennedy Center, it specifically provided for federal funding to be comingled with voluntary contributions to assist in its construction. Ultimately, the center's trustees raised \$34.5 million from the private sector and foreign governments to exceed the federal matching requirement of \$23 million. The Secretary of the Treasury was authorized to issue \$20.4 million in revenue bonds to help complete the substructure.

While the principal of the bonds thus issued was not due for payment until 2017–2019, rapidly accumulating federal compound interest on them has adversely affected private fundraising. The 1984 amendments to the Kennedy Center Act waive past and future interest while requiring the center to begin early repayment of the principal beginning in 1987. This important congressional action, carried out with the full support of the executive branch, will significantly improve the center's financial stability and enable it to launch a long-delayed endowment drive. Thus the center's operation as a performing arts center will continue to be firmly rooted in private sector support. With a total of 50 million visitors, the Kennedy Center remains one of the most popular tourist sites in the Nation's Capital.

## Performing Arts Programming

The 1983–84 season at Kennedy Center was attended by 1.2 million people in the Eisenhower and Terrace Theaters, Opera House, and Concert Hall. Programming highlights are described in the sections that follow.

### DRAMA AND MUSICAL THEATER

The theatrical season at the Kennedy Center addressed, as it has in previous seasons, the past as well as the future. Twenty productions—revues, lavish musicals, one-person shows, farce, tragedy, premieres, and revivals—featured such diverse artists as Elizabeth Ashley, Lauren Bacall, Anthony Quinn, Carol Channing, Dustin Hoffman, and Jack Klugman in an extraordinarily diverse array of theatrical offerings: *Agnes of God*, *Woman of the Year*, *Zorba*, *Jerry's Girls*, *Death of a Salesman*, *Lyndon*.

New plays were well represented: Arthur Kopit's *End of the World*, the American premieres of Michael Frayn's hilarious comedy *Noises Off*, David Pownall's *Master Class*, Vinnette Carroll's *When Hell Freezes Over, I'll Skate*, and A. R. Gurney, Jr.'s *The Golden Age*, starring Irene Worth.

Consistent with its efforts to assist mainstream programming reflecting this country's ethnic diversity, the Kennedy Center's National Committee on Cultural Diversity provided significant financial support for the presentation and audience development of *When Hell Freezes Over, I'll Skate*.

This past year also marked box office records for the Terrace Theater and Opera House. Anthony Quinn in *Zorba* broke all previous one-week box office totals in the Opera House, and the Denver Center Theater Company production of *Quilters* set new Terrace Theater records for attendance as well as receipts.

Finally, on the international scene, the Kennedy Center landmark revival of Rodgers and Hart's *On Your Toes* began a long, successful London engagement with the production's original star and Tony Award winner, ballerina Natalia Makarova. The acclaimed Vienna Volksoper, making its premier American tour, presented *The Merry Widow*, *The Gypsy Princess*, and *Die Fledermaus*, following in the path of earlier seasons' enthusiastic audience reception for the Vienna Staatsoper and Vienna Philharmonic. The Concert Hall housed one of its rare theatrical offerings when the National Theater of Greece presented its contemporary staging of

*Oedipus Rex*, directly following the company's appearance at the Los Angeles Olympic Arts Festival.

#### DANCE

During the 1983–84 season, the Kennedy Center once again offered a ballet and dance series that brought outstanding American representatives of this art form to the Nation's Capital. An exciting first engagement by the John Curry Skating Company offered a unique blend of ballet choreography and championship ice skating.

Opening the season was the Kennedy Center debut of one of the country's outstanding regional companies, the Houston Ballet, under the artistic direction of Ben Stevenson; works offered included a lavish and highly praised new full-length production of *Sleeping Beauty*.

American Ballet Theatre made its annual Kennedy Center appearance during the December holiday season. For the first time in many years, the company did not dance its famed *Nutcracker*; rather, the center offered ABT's world premier of Mikhail Baryshnikov's new production of the full-length Prokofiev ballet *Cinderella*, choreographed by Baryshnikov and Peter Anastos. The work was an immediate audience hit—sold out for sixteen performances—and captured press coverage across the country. Also widely acclaimed were the world premiere of Twyla Tharp's *Partita*, as well as appearances by Mikhail Baryshnikov in several Tharp works, including *Sinatra Suite*, first danced in Washington at the 1983 Kennedy Center Honors.

The New York City Ballet offered a critically acclaimed two-week engagement beginning in February. It was the company's first Washington appearance under the leadership of its new co-ballet masters in chief, Peter Martins and Jerome Robbins, following the death of the company's founder, George Balanchine. Robbins offered the world premiere of his new work, *Antique Epigraphs*, as well as Washington premieres of his *Glass Pieces* and the remarkable *I'm Old Fashioned*, fusing a dance sequence from an Aitaire-Rogers film with live dancers. Also praised was Peter Martin's new work *A Schubertiad*. The Balanchine legacy was represented by a large number of works ranging from his first American-created ballet, *Serenade*, to one of his last masterpieces, *Vienna Waltzes*.

Dance Theatre of Harlem, under the leadership of artistic director Arthur Mitchell, made its annual appearance under the





Triple-medal-winner John Curry brought his company of exceptional skaters and a blend of ballet choreography and ice skating to the Kennedy Center for a critically acclaimed and sold-out engagement.

sponsorship of the Washington Performing Arts Society, offering the Washington premiere of its production of Agnes de Mille's study of Lizzie Borden, *Fall River Legend*, as well as *Swan Lake, Act II* and the company's always popular production of *Firebird*. Also in the repertory was Geoffrey Holder's intense "voodoo" ballet, *Douglas*.

The Joffrey Ballet closed the season with a challenging and exciting repertory including William Forsythe's acid study of contemporary male-female relationships, *Love Songs*; Gerald Arpino's sunny *Italian Suite*; and Jiri Kylian's sophisticated homily to folk dancing, *Dream Dances*.

Modern dance was well represented in the Terrace Theater, with sold-out performances by the Joyce Trisler Danscompany, Crowsnest and Elisa Monte, all included in the Dance America series, which is cosponsored by Kennedy Center and the Washington Performing Arts Society. The latter organization also sponsored a week-long engagement of the Paul Taylor Dance Company in the Eisenhower Theater.

Many choreographers familiar to Washington's ballet and dance patrons—Twyla Tharp, Laura Dean, Peter Martins, Lar Lubovitch—contributed to the astonishing repertoire of the John Curry Skating Company. The stage of the Opera House—and backstage areas—were literally frozen to create a vast surface for the company, led by triple medal-winner John Curry. Hailed as "the supreme artist on ice," Curry led the company, which featured Jo Jo Starbuck, David Santee, and special guest artist Dorothy Hamill, to enthusiastic reviews and sold-out performances.

The magnificent Spanish dancer Maria Benitez and her company were presented in the Terrace Theater for two sold-out evenings, and the remarkable Hungarian State Folk Ensemble for an evening in the Concert Hall.

Finally, an unusual special attraction was offered for one week in the Opera House: the *Antologia de la Zarzuela*, from Spain.

### MUSIC

After its creation as a "living memorial" to John F. Kennedy in 1964, the Kennedy Center opened its doors in 1971 with Leonard Bernstein's *Mass*, a theatrical work with music and dance commissioned by the late President's widow.

The 1984 musical season at Kennedy Center paid heed to the past, even as it continued to encourage young concert artists of the

future. A moving musical tribute commemorating the twentieth anniversary of the death of President Kennedy on November 22, 1983, was a gift to the public from the Kennedy Center and the Kennedy family. Artists from all over the world donated their appearances, including soprano Grace Bumbry and accompanist Jonathan Morris; the chamber trio of Eugene Istomin, Isaac Stern, and the late Leonard Rose; cellist Mstislav Rostropovich; actor Cliff Robertson; baritone Stephen Dickson and flutist Priscilla Fritter, with the Norman Scribner Choir. A capacity audience filled the Concert Hall and an overflow audience was able to watch and hear the concert from the Grand Foyer via large-screen sound and video relay.

A new operatic work by Leonard Bernstein, *A Quiet Place and Trouble in Tahiti*, reopened the Kennedy Center Opera House after its extensive renovation. Commissioned jointly by the Kennedy Center, the Houston Grand Opera, and Milan's Teatro alla Scala, the work significantly revised and extended Bernstein's one-act opera of the early 1950s, *Trouble in Tahiti*. First presented in Houston, the new opera was then substantially reworked prior to its triumphant world premiere at La Scala. It made its East Coast debut at the Kennedy Center in July.

Audiences for the 1983–84 Terrace Concerts were larger than ever before. Twenty-seven concerts were offered, including the first five concerts in the Fortas Chamber Music Series, an endowed series in memory of the late Justice Abe Fortas, a trustee of the Kennedy Center with a lifelong commitment to chamber music. Performing in the Fortas series were clarinetist Richard Stoltzman; Jody Gatwood and Friends; the Brandenburg Ensemble conducted by Alexander Schneider, with Peter Serkin; the Guarneri String Quartet; and Tashi, featuring musicians Richard Stoltzman, Ida Kavafian, Fred Sherry, Theodore Arm, and Toby Appel. There were also performances by pianists Shura Cherkassky, Byron Janis, Paul Badura-Skoda, and Jean Bernard Pommier; chamber music concerts by the Lausanne Orchestra; a Brahms cycle of three concerts by the Kalichstein-Laredo-Robinson Trio; flutist Paul Robison and pianist Ruth Laredo; song recitals by Judith Blegen, Barbara Hendricks, Lucia Popp, and Peter Schreier. The American Composers Series honored Elliott Carter, Morton Feldman, Conlon Nancarrow, Laurie Anderson, and Gunther Schuller.

For the fourth summer, the Kennedy Center also presented the Saint Paul Chamber Orchestra, under the direction of Pinchas Zukerman, and Lincoln Center's Mostly Mozart Festival. Appear-

ing with the Saint Paul Chamber Orchestra were soloists Ralph Kirshbaum (cello), Kathryn Greenbank (oboe), and Rudolf Firkušny (piano).

In addition, Zukerman was the viola soloist in Hindemith's "Trauermusik" and violin soloist in Bach's Concerto in C Minor for Oboe and Violin and Vivaldi's "The Four Seasons." The Mostly Mozart Festival Orchestra performed five concerts, including five preconcert recitals, with soloists Misha Dichter (piano), Elmar Oliveira (violin), Young-Uck Kim (violin), Philippe Entremont (piano), Richard Stoltzman (clarinet), Lillian Kallir (piano), Menahem Pressler (piano), and Janos Starker (cello). Conducting the orchestra this year were Gerard Schwarz and Eduardo Mata. One of the five concerts was an entire program by the Tokyo String Quartet.

The Friedheim Awards, which recognize American composition in symphonic and chamber music in alternating years, awarded first prize for 1983 in the category of chamber music to Thomas Oboe Lee for his Third String Quartet. Second place was awarded to George Perle for "Sonata A Quattro," and third place to Karel Husa for "Recollections."

Theater Chamber Players, Young Concert Artists, and the Chamber Music Society of Lincoln Center returned for their annual concert series in the Terrace Theater and Concert Hall. The Handel Festival for 1983 featured the Washington premieres of the opera *Orlando* and oratorio *Alexander Balus* and the third annual *Hallelujah Handel* concert. The latter is one of the season's most popular music events and this year included an appearance by the well-known soprano Roberta Peters.

The National Symphony Orchestra, under music director Mstislav Rostropovich, presented a full thirty-seven-week season in 1983-84, with soloists and guest conductors and new works. The Washington Opera season in the Opera House and Terrace Theater offered seven productions, including *Rigoletto*, *Così Fan Tutte*, and *Semele*.

The Metropolitan Opera, celebrating its Centennial Season, returned for two weeks to the Kennedy Center for its fifth consecutive engagement. Highlights included Plácido Domingo and Renata Scotto in *Tosca* and *Francesca da Rimini*, Jon Vickers and Johanna Meier in *Peter Grimes* and *Die Walküre*, Leona Mitchell, Sherrill Milnes, and Ermanno Mauro in *Ernani*, Gail Robinson and David Rendell in *The Abduction from the Seraglio*, and Marilyn Horne and Benita Valente in *Rinaldo*. The performances were

conducted by James Levine, David Atherton, Mario Bernardi, and Thomas Fulton.

One of the highlights of the annual Kennedy Center Christmas Festival was a "kick-off" celebration for the holidays during which tickets to the ever-popular free "Messiah Sing-Along" were distributed to the thousands of people who stand in line every year to receive them. While "Sing-Along" tickets were being distributed, entertainment was provided, and leading arts figures awarded additional tickets to other popular Holiday Festival programs.

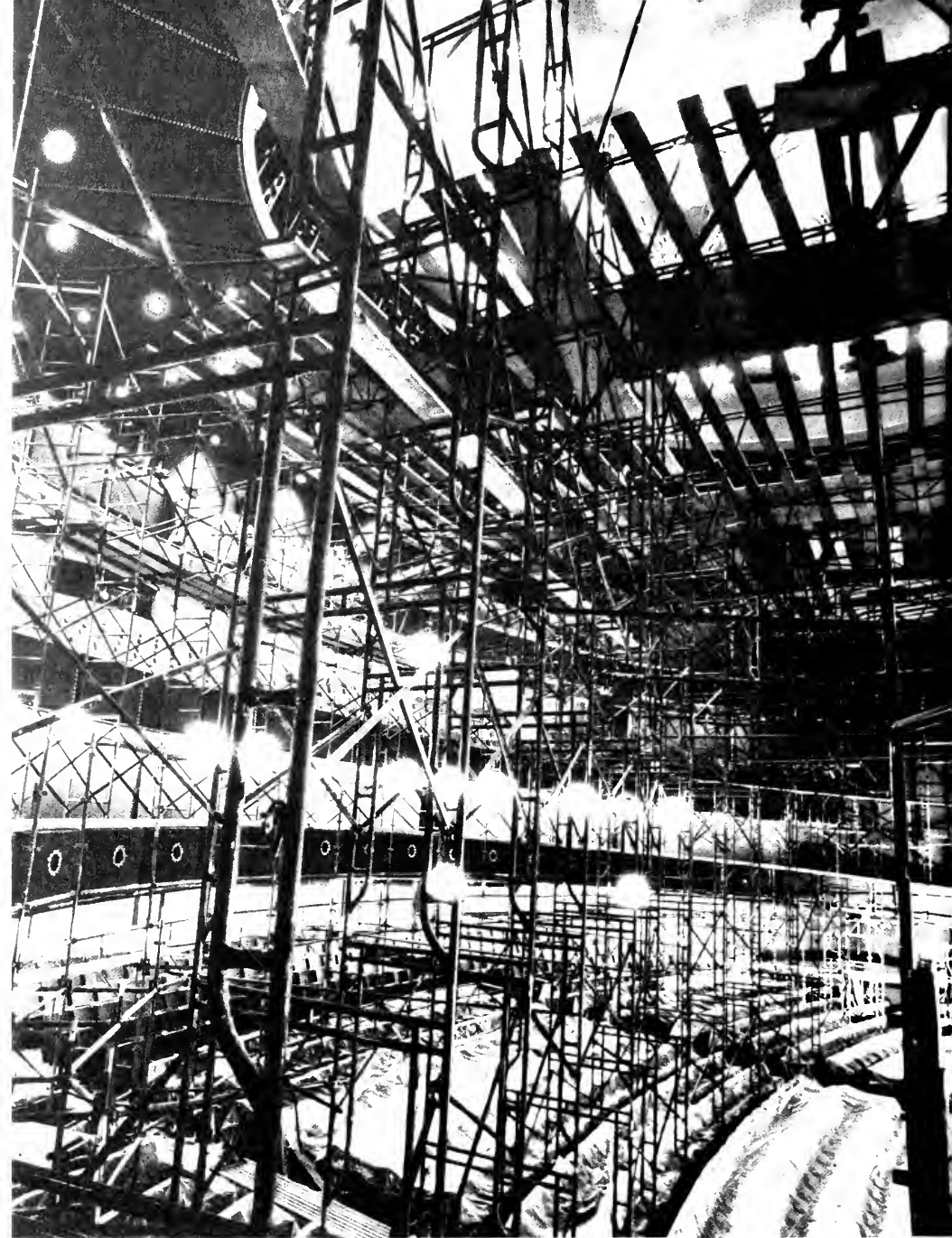
As in previous years, there were many free public performances in the Grand Foyer, attended by more than 10,000 people. There were also performances by the New York String Orchestra under the baton of Alexander Schneider. *A Night in Old Vienna* was once again a tremendous success, with waltzing in the Grand Foyer on New Year's Eve to the music of Alexander Schneider and Friends following their customary holiday concert in the Concert Hall.

#### FILM

Through a series of national programs emanating from its offices at the Kennedy Center, as well as from its campus in Los Angeles, the American Film Institute (AFI) serves as the single national institution devoted to the advancement and preservation of film, television, and the related media arts. Established as an independent, nonprofit organization in 1967 by the National Endowment for the Arts, the Film Institute strives to increase recognition and understanding of the moving image as an art form, to assure preservation of that art form, and to identify, develop, and encourage new talent.

In its 224-seat theater at the Kennedy Center, the American Film Institute has, since 1973, presented 7,500 motion pictures to a total audience of more than one million people. Classic films, independent features, foreign films, and contemporary video works comprise the daily programming, often accompanied by guest artists and lecturers. The Exhibition Services division at AFI this past year toured a variety of special services to selected sites around the country, featuring such diverse programming as Arab films, British independent features, and the films of China.

In addition to the AFI Theater, the Kennedy Center also houses the offices of the Film Institute and the AFI Resource Center, one



Scaffolding filled the Kennedy Center Opera House during the spring and summer of 1984 as the hall underwent a \$2 million renovation, which was made possible through private fundraising.

of the area's leading libraries and information clearinghouses on the media arts. The AFI staff in Washington publishes *American Film: The Magazine of the Film and Television Arts*, a monthly magazine with a circulation of more than 140,000, and further serves the national membership through the Membership Services division, which publishes the AFI newsletter *Close-Up*.

During the past year, the AFI Special Events program hosted a number of fundraising benefits and premieres at the Kennedy Center and elsewhere in Washington. Highlights included the world premiere of *The Right Stuff* in the Eisenhower Theater and the first annual AFI ball last spring, honoring dancer and actress Ginger Rogers.

Professional conservatory training for film and videomakers is provided at the Center for Advanced Film Studies on the AFI campus in Los Angeles. Also operating from its Los Angeles offices are the institute's Public Service program, which conducts film and video workshops and seminars across the country, and the Education Services program. The institute also administers NEA funds for production grants to independent filmmakers; conducts the Directing Workshop for Women; coordinates an intern placement program with major film directors; and annually presents the AFI Life Achievement Award to an individual "whose talent has in a fundamental way advanced the filmmaking art . . . and whose work has stood the test of time." The 1984 award was presented in March to pioneer film actress Lillian Gish and was televised nationally on CBS.

Working with the National Endowment for the Arts, the institute has created the National Center for Film and Video Preservation to preserve film and videotape and to coordinate a comprehensive preservation effort serving film archives around the country. Included in these preservation activities is the continuation of the AFI catalog project, which, when completed, will provide a comprehensive listing of American films made since 1893.

### *Public-Service Programming*

The Kennedy Center is specifically directed by Congress to carry out a broad range of educational and public service programs, in addition to its principal performing arts-programming responsibilities. These congressionally mandated broad social purposes remain

unfunded by the federal government, except for partial Department of Education funding of three national education programs.

During 1984, therefore, the board of trustees once again raised private contributions to fulfill its Section 4 mandate as stated in the Kennedy Center Act, to support the national education programs, cultural diversity activities, and the privately subsidized presentation of theater, music, and dance. Five million dollars was allocated from contributions by individuals, foundations, and corporations during 1984 for these purposes, including 450 free and low-admission performances and events enjoyed by 400,000 people in Washington, D.C., and in cities around the country.

#### *SPECIALLY PRICED TICKET PROGRAM*

Since it opened in September 1971, the Kennedy Center has maintained a Specially Priced Ticket Program through which tickets to center-produced and presented attractions are made available at half price to students, handicapped persons, senior citizens over sixty-five, low-income groups, and military personnel in grades E-1 through E-4. The attendant costs, in terms of reduced revenue potential and administrative overhead, are borne by the center itself and are viewed as a part of its educational/public service responsibilities.

During the twelve-month period ending September 30, 1984, 69,167 tickets for attractions produced and presented by the center were sold at half price. The sale of these tickets at full price would have resulted in additional gross income to the center of \$714,791. Independent producers are also required to participate in the program by making a percentage of their tickets available for sale at half price. During the twelve-month period ending September 30, 1984, combined half-price tickets sales totalled 89,490. The sale of these tickets at full price would have resulted in a total additional gross income of \$1,167,790 to the center and the independent producers.

### *Education Programming*

Section 4 of the Kennedy Center Act directs the board of trustees to develop programs for children and youth in the performing arts. The center's Education Program, designed toward this end, provides national leadership in arts education through educational



networks across the country, through cooperative programming with regional performing-arts centers, and through the presentation of performances for young audiences. During 1984, 3.5 million students, their families, and teachers were involved in the three primary components of the Education Program: the American College Theatre Festival (ACTF), Programs for Children and Youth (PCY), and the Alliance for Arts Education (AAE).

The United States Department of Education provided \$675,000 in funding for national outreach components that was matched overall by \$1.6M in-kind support. Additional matching contributions, in excess of the federal support provided, are provided principally through the Kennedy Center Corporate Fund, with additional assistance from corporations, foundations, and individuals. At both the state and national levels, the Kennedy Center Education Program seeks to promote the incorporation of the arts into the education of every child by identifying and supporting exemplary arts education projects. As part of this commitment, the Kennedy Center works closely with the National Committee, Arts with the Handicapped, and the National Information Center, Arts Education and Americans.

#### *ALLIANCE FOR ARTS EDUCATION*

The Alliance for Arts Education (AAE) is an information network comprising fifty-three state and territorial committees, funded in part by the Kennedy Center Education Program, that attempts to identify, develop, promote, and maintain quality arts education programs throughout the nation. It is the only such national network that speaks for all the arts for every student. Each AAE committee is unique, reflecting local conditions. The national AAE, therefore, has allowed for flexibility in the structure and operation of these committees, within established guidelines. On the national level, the AAE serves as an information exchange; identifies and spotlights notable achievements of the AAE committees and exemplary local arts programs and individuals; provides technical assistance; develops arts education advocacy materials for use at state and local levels; oversees the management and leadership of the entire AAE network; and develops and conducts programs of national significance. AAE committee members are artists, educators, parents, and administrators affiliated with professional arts education associations, state departments of education, state and local arts agencies, university and college arts departments, cultural arts centers, and public school systems. A major thrust for many

of these state committees has been the development and implementation of Comprehensive State Arts Curriculum Plans.

Through awards and recognition, the AAE brings visibility to outstanding educators and quality programs in arts education. The Summer Fellowships for Outstanding Teachers of the Arts Program is a method, begun this year, of rewarding excellence in teaching, while allowing arts teachers to further pursue their artistic areas. Teachers selected from applicants nationwide received a stipend and a three-week residency in Washington, D.C., to work, exhibit, and perform. Recognition awards are also given to elementary school principals and other individuals for excellence of effort in fostering the arts in their schools. National recognition of talent in youth is also an important concern of the AAE. The national office coproduces, with the annual Presidential Scholars Commission and the National Foundation for Advancement in the Arts, the Presidential Scholars in the Arts Showcase performance in the Kennedy Center Concert Hall. Twenty outstanding high school seniors, representing dance, music, creative writing, and the visual arts, are selected from throughout the nation and are brought to Washington for a week of activities, highlighted by their performances at the center.

The AAE is primarily an information exchange network with various means of distribution. *Interchange* is a bimonthly publication—made available upon request, free of charge—that provides information on arts education activities and events that may be of interest and assistance to various educators and organizations across the country. Other publications on a variety of arts education topics are made available from the national office through the National Information Center, located at the Kennedy Center.

Town Meetings on Arts Education are produced twice a year at the Kennedy Center by the AAE. This gathering of arts educators and arts education association directors addresses topics of mutual interest outside the educational framework. Other special projects and services provided by the AAE include the coordination and planning of conferences and meetings.

In short, the AAE serves as a bond between the arts and arts education; between government and the private sector; between arts associations and institutions; and between professional arts education organizations and educational associations. It has established a wide network of people working toward the development of the arts and arts education as basic to the cultural vitality of their communities.

## PROGRAMS FOR CHILDREN AND YOUTH

The commitment of the Education Program to quality performing-arts programming for young people is clearly expressed through the work of the Programs for Children and Youth (PCY), which is committed to developing new performing works for young people and accompanying materials for teachers and others, to help integrate performance into the student's overall education.

During the past season, PCY presented nearly 500 free performances and related events to audiences of more than 400,000 in Washington, D.C., and cities around the country. An ongoing series of programs for young people are produced at the Kennedy Center by PCY, which is resident in the center's Theater Lab. Events include a Fall Series of performances, a special Holiday Show with a cast of young performers, the Cultural Diversity Festival, and—the highlight of each year—IMAGINATION CELEBRATION.

IMAGINATION CELEBRATION, an annual national children's arts festival at the Kennedy Center, is produced by PCY, and key elements are replicated in selected cities throughout the United States in outreach IMAGINATION CELEBRATION festivals. This program not only provides a model for performing-arts festivals for young people but enables the center to contribute to the development of new works, to involve noted artists in programming for young people, and to serve as a catalyst for the development of programs for young people at performing-arts centers throughout the country.

Programs for Children and Youth provides technical assistance and core professional productions for each outreach festival, featuring such well-known artists as Sarah Caldwell, Jacques d'Amboise, Leon Bibb, and Gian Carlo Menotti. Each year at the IMAGINATION CELEBRATION Gala held at Kennedy Center, an Award for Excellence is presented to an outstanding artist or individual for his or her contribution to young people and the arts. The recipient of this year's award was Fred Rogers of the popular and long-running public television program, "Mr. Rogers' Neighborhood." PCY also offers an Arts Education Workshop series to Washington area elementary and secondary teachers. The workshops are offered annually in the fall and spring and were created to provide greater awareness and appreciation of all art forms, thus enhancing teacher commitment to the arts in education. A series of drama classes for young people is also offered. Children aged five to eighteen may register for classes taught by professional actor/teachers on Saturdays at the Kennedy Center.

Nineteen eighty-four marked the eighth programming year for PCY. In that time more than 3,000 performances have been presented to more than 1.4 million young people and their families. There were twenty-five IMAGINATION CELEBRATION festivals in nine states and the District of Columbia in 1984. Since 1977, PCY has commissioned and/or produced sixteen new works, including plays, operas, and dance pieces.

During 1983-84, Programs for Children and Youth was supported by the U.S. Department of Education and the Kennedy Center Corporate Fund, with additional funds provided by the Alvord Foundation, Mobil Corporation, the German Orphan Home Foundation, and the Corina Higginson Trust.

#### AMERICAN COLLEGE THEATRE FESTIVAL

The American College Theatre Festival (ACTF) is presented annually by the Kennedy Center to provide national recognition of the efforts of college and university theaters throughout the United States. Nearly 13,500 students and 2,500 faculty members from 460 schools participated in ACTF-XVI. 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 sixty productions were presented in twelve regional festivals. Of these, seven were chosen for showcase presentation at the two-week national festival in the Kennedy Center Terrace Theater: *Working*, Illinois Wesleyan University, Bloomington; *Eleven-Zulu*, University of Missouri, Columbia; *Arrah-Na-Pogue*, State University of New York at Binghamton; *Angel City*, University of Puget Sound, Tacoma, Washington; *Mindbender*, Rhode Island College, Providence; *The Taming of the Shrew*, California State University, Fresno; and *American Buffalo*, Clemson University, Clemson, South Carolina.

The Michael Kanin Student Playwriting Award and other ACTF awards and scholarships in acting, theatrical design, theater criticism, and theater management offer students vital professional experience and cash awards totaling more than \$30,000.

This past summer, twelve outstanding students from across the country were selected for training at a two-week career-develop-

ment symposium and performance showcase. The students spent July 16–28 at the Coolfont Conference Center, a residential recreation and conference center in Berkeley Springs, West Virginia, where they were coached in how to audition professionally and received other assistance in preparing for a career in the theater. The program culminated with a performance for producers and casting agents in the Theater Lab at the Kennedy Center and at the Douglas Fairbanks Theater in New York City. David Young, producing director of the ACTF, served as director for the program. Marshall Mason of Circle Repertory in New York was artistic director. Nationally recognized theater professionals served as coaches, advisers, and symposia leaders.

The American College Theatre Festival is presented and produced by the John F. Kennedy Center for the Performing Arts in cooperation with the University and College Theatre Association, a division of the American Theatre Association, and is supported in part by the Amoco companies and the Kennedy Center Corporate Fund.

### *Friends of the Kennedy Center*

The Friends of the Kennedy Center is a nationwide organization of volunteers and donor members founded in 1966 to raise grassroots support for the building of a National Cultural Center. Today, thirteen years after the doors of the center first opened, the Friends continue to promote its programs and activities.

As a result of an ongoing effort to increase community and national involvement with the Kennedy Center, Friends membership has grown from 6,000 to more than 26,000 in the last three years, with members in every state.

In the Washington metropolitan area, 350 Friends volunteers contributed more than 65,000 hours of service during the past year to provide visitor and information services 365 days a year. The volunteers staffed the Friends gift shops, provided special assistance to handicapped visitors, and administered the Specially Priced Ticket Program. Volunteer guides offered free tours every day of the year to more than 6,000 people who visit the Kennedy Center on an average day. Tours are also conducted in several foreign languages to accommodate the large numbers of visitors

from abroad. Group tours, including those arranged through members of Congress, are also offered on a regular basis. Other areas of involvement for Friends volunteers include a Speakers' Bureau, benefit committees, and participation in community outreach programs.

*Kennedy Center News*, published bimonthly by the Friends, serves as the public relations newsletter for the Kennedy Center and is received by thousands of Friends members, members of Congress, arts organizations, government agencies, and libraries across the country. Revenues from the Friends membership, gift shops, and fundraising activities help support such public service and national outreach programs of the Kennedy Center as the American College Theatre Festival; the IMAGINATION CELEBRATION festivals for children; the National Very Special Arts Festival of the National Committee, Arts with the Handicapped; organ recitals and an annual organ concert, free to the public; arts career workshops and special tours of the center for more than 5,000 4-H participants in the annual summer Washington, D.C., program; and the Specially Priced Ticket Program.

Members of the National Council of the Friends of the Kennedy Center are listed in Appendix I.

### *Performing Arts Library*

March of 1984 marked the completion of five full years of operation for the Performing Arts Library. During its most recent year, the library served a widening circle of readers interested in all aspects of the performing arts. These readers represent not only professional artists, scholars, writers, and administrators, but also a broad cross section of the general public, whose questions range from the casual to those requiring extensive research. As a working arts information center, with a direct computer link to the collections and resources of the Library of Congress, the Performing Arts Library assists directors, designers, and artists on a continuing basis.

The Performing Arts Library was visited and used by nearly 20,000 readers, while an additional thousand people used the library by telephone or by letter, calling or writing from all over the country and from several foreign nations.

The major exhibit this year was *The Grand Interpreters: Personalities in Opera in America*, which opened on April 24 and remained on view through the end of the year. This was the product of several experts, not only in the Library of Congress Exhibits Office, but also at the National Portrait Gallery and the Metropolitan Opera. Donor Charles Jahant's collection formed the core of the exhibition, which featured costumes, costume designs, music manuscripts, and Jahant's incomparable photographs among its many treasures. An earlier exhibition, *All Singing, All Talking, All Dancing*, featured posters from Hollywood musicals of the 1930s and 1940s drawn from the poster collection in the Prints and Photographs Division of the Library of Congress.

The Performing Arts Library participated in conferences and meetings with a variety of groups in the fields of the arts, arts education, and librarianship from several parts of the United States and from countries around the world. Of particular note were a group of dance scholars from Mexico, performing-arts specialists from the Society of American Archivists, and teacher-fellows from the Alliance for Arts Education Summer Fellowship Program.

### *Kennedy Center Honors*

The Kennedy Center Honors were first awarded by the board of trustees in 1978 to recognize lifelong achievements by this nation's performing artists. An annual event, the Honors Gala is the center's most important fundraising benefit; the 1983 gala raised \$600,000 in net proceeds to support Kennedy Center programming. The 1983 honorees were Katherine Dunham, Elia Kazan, Frank Sinatra, James Stewart, and Virgil Thomson. Preceding the 1983 Honors Gala in the Opera House was a reception at the White House, hosted by President and Mrs. Ronald Reagan. Among the performers who participated in the evening's tributes, later broadcast by CBS during the holiday season to more than 30 million viewers, were Mikhail Baryshnikov, Warren Beatty, Carol Burnett, Perry Como, Geoffrey Holder, John Houseman, Carmen de Lavallade, and Agnes de Mille. This broadcast was awarded an Emmy as the outstanding variety, music, or comedy program for the year.

## Funding

The Kennedy Center's operating budget for 1984—from its theater operations, concession income, and contributions—was \$31 million.

During 1984 the Kennedy Center completed the first phase of its centralized automation, made possible in part by major contributions from Digital Equipment Corporation for hardware and American Digital Systems Corporation for software. By the end of the year marketing, membership, and development as well as the financial payroll and accounting were on line. Automation of the center's box office operations, the second phase, will be undertaken in later years.

The National Park Service is responsible for much of the maintenance and for ensuring the security of the Kennedy Center, which, as a presidential memorial, is open to the public without charge every day of the year. 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 1984 reimbursement to the National Park Service of more than \$1 million, the center additionally bears the complete cost of maintaining its five theaters and extensive backstage and office facilities, for which more than \$1.4 million in privately raised funds were expended during fiscal year 1984 for the Opera House and other theater renovation.

A total of \$2 million in private gifts were raised by the Kennedy Center for renovation of its 2,318-seat Opera House. Included in this much-needed facelift were replacement of the wall fabric, carpeting, and seat cushions; improvement of the sound and lighting systems; installation of a portable ballet floor; repair of the pit lift; and automation of stage curtain machinery. Donations included \$670,000 from the Robert Wood Johnson Jr. Charitable Trust; \$400,000 from the Kresge Foundation; \$150,000 from the Pew Memorial Trust; \$100,000 from the Atlantic Richfield Foundation; and \$25,000 from both the James G. Hanes Memorial Fund/Foundation and the William Randolph Hearst Foundation. A special benefit featuring Placido Domingo netted an additional \$200,000 for the project and nearly \$100,000 was raised from a benefit with Wayne Newton, sponsored by the President's Advisory Committee. Proceeds from the Kennedy Center's 1983 Honors Gala provided the remaining funds needed to complete the project.



Since the Kennedy Center opened in 1971, foundations, corporations, and individuals have contributed more than \$31 million to its support. A major portion of the private support has been provided by the Kennedy Center Corporate Fund, which was organized in 1977 by the principal officers of thirty-six major American corporations. It currently represents more than 300 corporations committed to the support of the national cultural center. Funds contributed to the Corporate Fund enable the Kennedy 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 Kennedy Center. Roger B. Smith, chairman of General Motors Corporation, served as chairman of the 1984 Corporate Fund. The members of the board of governors and a listing of fund contributions received during the past year can be found in Appendix 8.

### *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 designed 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.

### *The President's Advisory Committee on the Arts*

Established by the 1958 Act of Congress that created the National Cultural Center, the President's Advisory Committee on the Arts is appointed by the President of the United States to serve during his term of office. Its objectives are to support and promote the Kennedy Center. Representing membership from forty-four states, the committee during the past year attended four meetings at the center; its members concentrated their discussions on private fundraising and national outreach programs.



## NATIONAL GALLERY OF ART

J. CARTER BROWN, DIRECTOR

The National Gallery of Art, 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 of which are 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 Stevenson.

During the year, visitors entering both of the National Gallery's buildings numbered 4,859,172. Two new galleries were opened on the main floor to permit expanded and more flexible display of eighteenth-century Italian paintings.

The Photographic Services Department moved into its long-awaited new suite of offices on the ground floor of the West Building, making it convenient to members of the public who wish to purchase black-and-white photographs or get permission to use tripods for photography in the galleries, and for others who may wish to borrow transparencies for publications.

Outside these offices, in the ground floor lobby, construction barriers were removed to reveal a wonderful architectural feature that had been conceived for the enhancement of the visitors' introduction to the Gallery at that level as well as for those above. A large oculus in the ceiling of the lobby, nineteen-and-a-half feet in diameter and surrounded by a marble parapet, now allows light

to enter from the windows on the main floor above it and, more importantly, offers visitors a dramatic view of the huge green marble columns of the grand rotunda.

For the first time, the Extension Program audience exceeded 100 million. Of the 114,534,980 persons estimated to have viewed the programs during fiscal year 1984, the great majority was reached through public and educational television, with an increase of more than fourteen million over the television audience of the previous year.

A further reason for the increased audience was the addition of sixty-one agencies to the Extended Loan Program, participants in which act as affiliate distributors of Gallery extension program materials.

A laser optical videodisc containing 1,645 individual images from the National Gallery's collections was produced during the year. The first of its kind on a museum, the videodisc also contains two thirty-minute programs on the Gallery's history, collections, and programs, narrated by the director.

Awards received for Gallery programs included the CINE Golden Eagle for the film *David Smith*; a nomination for a Golden Eagle for the film on the Peto exhibition, *Important Information Inside: John F. Peto and the Idea of Still-Life Painting*; and the selection of the film *Femme/Woman: A Tapestry by Joan Miro* as a finalist in the American Craft Council/American Craft Museum International Craft Film Festival.

The Gallery received a number of outstanding contemporary works during the year. The highlight was the announcement of the presentation by the Mark Rothko Foundation of 177 oil paintings and 108 works on paper by this very important twentieth-century artist, bringing to an end the uncertainty about the destination of this great body of works that had been in Rothko's possession when he committed suicide in 1970. The gift established the National Gallery as the central repository for Rothko's work and a leading center for the study of modern American art, posing new opportunities and challenges for art historians.

Several of the works added to the collection were by artists not previously represented: a Franz Marc painting titled *Siberian Sheepdogs in the Snow, Cobalt Blue* by Lee Krasner, a sculpture of a four-figure group of dancers by George Segal, and a large painting titled *Organization of Graphic Motifs II* by Frantisek Kupka, one of the earliest purely abstract artists. A black and white paint-

ing by Jackson Pollock, *Untitled #7* in the artist's figural style of the early 1950s, joined *Lavender Mist*, already in the collection, to illustrate two important aspects of Pollock's oeuvre.

Of the handsome American portraits donated to the Gallery, the most important is Charles Willson Peale's sympathetic and insightful painting of a close family friend, *John Beale Bordley*. A large, full-length portrait of *Martha Eliza Stevens Edgar Paschall* is a sensitive and individualized likeness of the young subject. *Olivia*, a 1911 portrait by Lydia Field Emmett, is a fine example of the artist's work, having won an Honorable Mention in the 1912 Carnegie International in Pittsburgh.

The Gallery's collection of works by the Renaissance artist Veronese was substantially upgraded by the purchase of one of the most beautiful of his late works, *The Martyrdom and Last Communion of Saint Lucy*. The Gallery also purchased *The Martyrdom of Saint Margaret* by Giuseppe Cesari, called Cavalier d'Arpino, a Roman artist of the late sixteenth to early seventeenth centuries.

One of the finest English medals relating to America, the seventeenth-century "Maryland Medal" representing Cecil Calvert, Lord Baltimore, founder of the colony of Maryland, with his wife, Anne Arundell, was acquired at auction, setting a world record price for a medal sold at auction.

Among the acquisitions of graphics were four major groups. One of the finest private collections of rare illustrated books and suites of prints on European architectural theory and practice, views and topography, design and ornament from the end of the fifteenth century to the beginning of the nineteenth century, the Mark Millard Architectural Collection will be given to the Gallery over a number of years, the first third coming this year by donation and purchase. A group of 131 American drawings from the John Davis Hatch Collection, from the late eighteenth century through the 1950s, was added to the collector's previous gifts, solidifying the Gallery's survey of the history of American drawing. The extensive collection of works by the Dutch artist M. C. Escher was further enhanced by donations of 115 prints, five illustrated books, and twenty-two volumes of original and documentary materials. A major gift of prints produced by the Tamarind Lithography Workshop during its important initial phase from 1960 to 1970, added to previous donations, provides the Gallery with a complete set of the early Tamarind prints showing the wide variety of artists who worked there, from the formalism

of Albers and Nevelson to the pop sensibility of Ruscha and Allen Jones.

Further acquisitions of drawings were led by the donation of *Le Modèle Honnête* by Pierre-Antoine Baudouin. Other notable gifts included the earliest known self-portrait by Sir Peter Lely, two drawings of Mr. and Mrs. Benjamin Fisher attributed to Gilbert Stuart, and a charming version of *Diana and her Nymphs Bathing* by Rowlandson.

Purchases of drawings included one of Vanvitelli's masterpieces, *The Waterfall and Town of Tivoli*; the Gallery's first seventeenth-century English drawing, *Meadow with Cattle and Deer* by Francis Barlow; and one of Kirchner's finest drawings, the monumental *Bather Lying on the Beach*, done in 1912.

Purchases of prints were distinguished by three extraordinary Renaissance works: the finest Mantegna engraving in any museum outside Europe, *Battle of the Sea Gods*; an early sixteenth-century North Italian woodcut, *Christ Carrying the Cross*; and Erhard Aلدorfer's early sixteenth-century etching *Mountain Landscape*, one of the earliest pure landscapes in Western art.

Selections from these acquisitions and from the graphics already in the collections—particularly the drawings recently acquired from the Julius Held and the John Davis Hatch collections—have been shown on a rotating basis in a continuing historical survey of major artists' prints in the new graphics galleries that were opened on the ground floor last year.

Of the nineteen temporary exhibitions during the year, three presented drawings by important eighteenth-century artists: Gainsborough, Piazzetta, and Watteau. In the first U.S. exhibition of drawings by the British painter Thomas Gainsborough, ninety-one works illustrated the artist's development and included pastoral landscapes, figure studies, and costume sketches. An exhibition of 106 drawings, prints, and illustrated books by the Venetian artist Giovanni Battista Piazzetta, lent from the collections of Her Majesty Queen Elizabeth II and numerous European and American public museums and private collectors and on view in the United States for the first time, marked the 300th anniversary of the artist's birth. The exhibition of ninety-eight drawings and forty-four paintings by Jean Antoine Watteau, also celebrating the 300th anniversary of the artist's birth, was the first major exhibition anywhere devoted solely to the work of this great French artist. It was organized jointly with the Réunion des musées nationaux, Paris, and the Verwaltung der Staatlichen Schlösser

und Gärten, Berlin, and included three of Watteau's most important paintings: *Pierrot (called Gilles)*, from the Louvre; and *The Embarkation for Cythera* and *Gersaint's Shopsign* from Berlin.

Four exhibitions were devoted to the works of major twentieth-century artists—the Spanish cubist Juan Gris, the Italian painter and sculptor Amedeo Modigliani, and the American abstract artists Mark Tobey and Mark Rothko.

Two major graphics collections were represented. Seventy-seven Old Master and modern drawings, from the fourteenth to the twentieth century, were lent by New York collector Ian Woodner, and the renowned library in Milan, the Biblioteca Ambrosiana, lent eighty-seven drawings by the finest masters from the late fourteenth to the early seventeenth century.

The first survey in this country of sixteenth-century Emilian drawings traced the influence of the great Renaissance master Antonio Allegri, called Correggio, on the work of thirty-one artists of that period.

*Early German Drawings from a Private Collection*, from the early fifteenth century to the eighteenth century, presented drawings by such early German masters as Albrecht Dürer, Hans Baldung Gai, Martin Schongauer, and Lucas Cranach the Elder.

*The Folding Image: Screens by Western Artists of the 19th and 20th Centuries*, an exhibition of more than forty folding screens executed since c. 1870, illustrated the impact of the Japanese art form, which suddenly became available to European artists such as Bonnard, Vuillard, Klee, and Balla when Japan was opened to the West in the nineteenth century. It has continued to the present day to influence such diverse artists as Lucas Samaras, Jack Beal, and David Hockney. Other highlights of the exhibition were screens by William Morris, Louis Comfort Tiffany, Antonio Gaudi, and Ansel Adams.

*The Orientalists: Delacroix to Matisse—The Allure of North Africa and the Near East* chronicled the fascination with the area of the world known in Europe as the "Orient" that brought artists from Europe and America to the Near East between 1798 and the onset of the First World War. The artists' individual reactions to the strange and the exotic were revealed in a complex variety of styles, from the grand-scale Delacroix *Sultan of Morocco*, and the vignettes from Arab life by Gérôme, to the modern distillations of the brilliant landscape and village scenes by Matisse and Kandinsky.

The centerpiece of the exhibition *Leonardo's Last Supper: Be-*

*fore and After* was a display of a full-scale Polaroid photomural, mounted on thirty-six panels, of the mural in its current state of restoration. Accompanying the photomural was a scholarly exhibition consisting of the artist's preparatory studies, selected from the collection of Her Majesty Queen Elizabeth II and organized by the Royal Library at Windsor, and a number of works in various media illustrating the mural's impact on later European masters.

During the Lenten and Easter seasons the Gallery was privileged to be able to display the monumental painting of *The Deposition* by Caravaggio, on loan from the Vatican Collections.

The Education Department continued to provide the high-quality educational programs and interpretive materials that enhance the visitor's enjoyment and understanding of the collections and special exhibitions. A new course for adults titled "The Language of Art" was well attended during the evenings in July and August. Attendance by elementary school groups on tours guided by gallery-trained volunteers dramatically increased. Introductory materials, including a slide program, were produced to prepare children for their visit to the exhibition *Art of Aztec Mexico: Treasures of Tenochtitlan*, which continued from the previous year. Labels and recorded tours were prepared for the Watteau, "Folding Image," and Orientalism exhibitions.

Among scholars who lectured during the year were Philippe M. Verdier, 1983–1984 Kress Professor, National Gallery of Art; Professor Egbert Haverkamp-Begemann of the Institute of Fine Arts, New York University; John Hayes, director of the National Portrait Gallery in London; Professor George Knox of the University of British Columbia; Professor Terisio Pignatti of the University of Venice; Edmund P. Pillsbury, director of the Kimbell Art Museum, Fort Worth; Donald Posner, Ailsa Mellon Bruce Professor of Fine Arts, Institute of Fine Arts, New York University; Eugene Thaw, author and art dealer; and Christopher White, director of studies, The Paul Mellon Centre for Studies in British Art, London.



## TEMPORARY EXHIBITIONS

*The John Hay Whitney Collection*, continued from the previous fiscal year, May 26–November 27, 1983, coordinated by John Rewald and Florence E. Coman.

*Night Prints*, continued from the previous fiscal year, June 5–October 9, 1983, coordinated by Ruth Benedict.

*Jean Arp: The Dada Reliefs*, continued from the previous fiscal year, July 3–October 30, 1983, coordinated by E. A. Carmean, Jr.

*Art of Aztec Mexico: The Treasures of Tenochtitlan*, continued from the previous fiscal year to April 1, 1984, coordinated by Elizabeth Boone, Dumbarton Oaks, and H. B. Nicholson, University of California at Los Angeles, supported by GTE Corporation and the Federal Council on the Arts and Humanities.

*Gainsborough Drawings*, October 2–December 4, 1983, coordinated by the International Exhibitions Foundation and Virginia Tuttle.

*Juan Gris*, October 16–December 31, 1983, coordinated by the University of California, Berkeley, and E. A. Carmean, Jr., supported in part by a grant from the National Endowment for the Arts, and by grants from the Paul L. and Phyllis J. Watts Foundation, and the University Art Museum Council.

*Piazzetta: A Terecentenary Exhibition—Drawings, Prints and Illustrated Books*, November 20, 1983–March 4, 1984, coordinated by George Knox, University of British Columbia, and H. Diane Russell, supported by the Federal Council on the Arts and Humanities.

*Modigliani: An Anniversary Exhibition*, December 11, 1983–April 22,

1984, coordinated by Eliza Rathbone.

*Master Drawings from the Woodner Collection*, December 18, 1983–May 6, 1984, coordinated by The J. P. Getty Museum, Malibu, California, and Andrew Robison.

*Leonardo's Last Supper: Before and After*, December 18, 1983–March 4, 1984, coordinated by Windsor Castle, Olivetti Corporation, and David Brown, supported by Olivetti Corporation.

*Caravaggio's Deposition*, March 4–April 29, 1984, coordinated by Sydney J. Freedberg.

*The Folding Image: Screens by Western Artists of the 19th and 20th Centuries*, March 4–September 3, 1984, coordinated by Michael Komanecky, Virginia Butera, Yale University, and Linda Ayres, supported by Bankers Trust Company, and by Goldman, Sachs & Co.

*Mark Tobey: The City Paintings*, March 11–June 17, 1984, coordinated by Eliza Rathbone.

*The Legacy of Correggio: Sixteenth-Century Emilian Drawings*, March 11–May 13, 1984, coordinated by Diane DeGrazia, supported by a grant from Cassa di Risparmio di Parma.

*Mark Rothko: Works on Paper*, May 6–August 5, 1984, coordinated by American Federation of the Arts and E. A. Carmean, Jr., supported by Warner Communications.

*Early German Drawings from a Private Collection*, May 27–July 8, 1984, coordinated by Andrew Robison.

*Watteau: 1684–1721*, June 17–September 23, 1984, coordinated by

Margaret Morgan Grasselli.

*The Orientalists: Delacroix to Matisse—The Allure of North Africa and the Near East*, July 1–October 28, 1984, coordinated by Mary Anne Stevens, Royal Academy of Arts, Florence E. Coman, and D. Dodge Thompson.

*Renaissance Drawings from the Ambrosiana, 1370–1600*, July 29–September 9, 1984, coordinated by The Medieval Institute, University of Notre Dame, and Diane DeGrazia, supported by The Samuel H. Kress Foundation and The Federal Council on the Arts and Humanities.

## 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 the Institution's activities.

### October

**Awards:** Five of the first Federal Awards for Design Excellence were presented to Smithsonian bureaus by the National Endowment for the Arts. This government-wide Presidential Design Awards Program was established by President Reagan in December 1983.

### October

**Gift:** A contribution from Millicent Monks enabled the Kennedy Center's Alliance for Arts Education to establish an education program in the public schools in Lewiston, Auburn, and Portland, Maine, this year.

### October

**Workshop Series:** The Office of Museum Programs, in cooperation with the Virginia Association of Museums, held a series of four museum management on-site workshops in Virginia from October to May.

### October 1

**Externships:** During the year, thirty-two students from ten countries, attending the Multicultural Bilingual High School, Washington, D.C., were given the opportunity for one-week work experiences by the Office of Museum Programs in various Smithsonian offices.

### October 1

**Workshop:** Under the sponsorship of the Office of Elementary and Secondary Education, the first Regional Workshop was held in Newport News, Virginia, bringing more than 300 teachers to work with local museum educators. The second workshop was held in New Orleans in March.

### October 1

**Appointment:** John H. Falk was named director of the newly created Smithsonian Office of Education Research under the Office of the Assistant Secretary for Science.

### October 3

**New Facility:** The Museum Support Center Branch of the Smithsonian Institution Libraries opened in Silver Hill, Maryland.

### October 4

**Award:** Paul J. Robert, student employee, received second place in the American Society of Agricultural Engineers' North Atlantic Region Student Paper Design Contest for a paper on "The Design and Implementation of a Computer System to Control and Monitor Environmental Growth Chambers" at the Smithsonian's Environmental Research Center Rockville facility.

### October 5

**Milestone:** Opening of the 1983-84 season of Discovery Theater, under the aegis of the Resident Associate Program.

### October 7

**Publication:** *Treasures of the Smithsonian*, written by Edwards Park and illustrated with 550 color photographs, was published by Smithsonian Books, presenting well-known, little-known, and research treasures of the Institution.

### October 7-8

**Symposium:** The Archives of American Art and the Detroit Institute of Arts cosponsored "The Quest for Unity: American Art between World's Fairs, 1876-1893."

### October 9

**Award:** The American Garden at the IV International Horticultural Exhibition (IGA 83), Munich, West Germany, designed and installed by James R. Buckler and Kathryn Meehan of the Office of Horticulture, was awarded a silver medal by the German Association of Landscape Architects.

### October 14

**Exhibition:** *Pain and Its Relief*, an examination of mankind's attempts to understand, combat, and alleviate pain, opened at the Natural Museum of American History.

### October 17

**Milestone:** The Resident Associate Program produced its first electronic outreach course, "The Telecommunications Revolution," broadcast through an interactive audio-bridge network to campuses of the California State University system.

### October 17-November 14

**Special Program:** The Office of Museum Programs and the United States Information Agency cosponsored a new project, Museum Administration, for museum professionals from Europe to study current practices and problems of museum administration at the Smithsonian and other museums throughout the United States.

### October 19

**Exhibition:** *The Capital Image: Painters in Washington, 1800-1915* opened at the National Museum of American Art with 250 paintings, prints, photographs, and sculptures on the early cultural life of the city.

### October 19

**Presidential Visit:** President Reagan was present at the twenty-fifth anniversary

sary celebration of the National Aeronautics and Space Administration that took place at the National Air and Space Museum.

#### October 19

**Research:** Biologists at the Smithsonian Tropical Research Institute (STRI) described in *Science* magazine an epidemic that killed millions of the ecologically important black sea urchin, *Diadema antillarum*, the worst epidemic ever documented among marine invertebrates.

#### October 20

**Seminar:** In commemoration of the Bicentennial of the Treaty of Paris, "The Great Garden Exchange" was arranged by the Office of Horticulture for the Smithsonian Resident Associate Program, exploring garden traditions and plant experiments from 1750–1830 in the United States, England, and France.

#### October 20

**Special Event:** Opening night of "The Smithsonian Salutes Washington Jazz." The series of four concerts presented from October to March featured noted Washington jazz artists—Ronnie Wells, John Eaton, Marc Cohen, Mike Crotty, and Buck Hill—and was sponsored by the Resident Associate Program.

#### October 20

**Exhibition:** *Robert Cornelius: Portraits from the Dawn of Photography* opened at the National Portrait Gallery, devoted to the work of this pioneering daguerreotypist, Robert Cornelius.

#### October 25

**Exhibition:** The National Museum of American History opened *The Naming of America*, an exhibition that displayed the world map of Martin Waldseemüller, thought to be the first map on which the name "America" was used.

#### October 26

**Special Event:** The National Portrait Gallery presented a self-portrait program with foreign correspondent and author William L. Shirer.

#### October 27

**Meeting:** Opening session of the Office of Elementary and Secondary Education's Career Awareness Program, bringing thirty-two ninth-graders from Ballou Senior Public High School to learn about museum careers from staff members at the National Museum of Natural History.

#### October 27–29

**Meeting:** The "Third Cambridge Workshop on Cool Stars Stellar Systems and the Sun," held at the Smithsonian Astrophysical Observatory (SAO), attracted over 100 scientists from the United States and abroad for three days of invited and contributed papers on the evolution and structure of cool stars.

#### October 31

**Milestone:** After more than a quarter-century of satellite tracking by both cameras, and lasers, the Smithsonian Astrophysical Observatory transferred all responsibility for the operation of its worldwide tracking network to the Bendix Corporation.

#### October 31

**Award:** Dr. G. Arthur Cooper, Museum of Natural History paleobiologist emeritus, received the Penrose Medal, the highest honor given to American geologists, at the Geological Society meetings in Indianapolis.

## November

**Exhibition:** *Ban Chiang: Discovery of a Lost Bronze Age*, an exhibition organized jointly by the Smithsonian Institution Traveling Exhibition Service (SITES) and the University of Pennsylvania, opened at the Museum of Natural History, exhibiting archeological discoveries that have changed the prevailing view of Southeast Asia's role in the development of civilization.

## November

**Workshop Series:** The Office of Museum Programs, in cooperation with the Southern Arts Federation, held two on-site workshops in November and March in Columbia, South Carolina, and Pensacola, Florida.

## November 1

**Exhibition:** The Cooper-Hewitt Museum opened *Amsterdam School*, marking the first time this subject, with an English catalogue, was exhibited in this country.

## November 9

**Exhibition:** *The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections*, one of the largest and most important Judaica collections in the world, opened at the National Museum of Natural History, circulated by the Smithsonian Traveling Exhibition Service. In its seven-week booking, this exhibition was viewed by 105,000 people. The exhibition catalogue was subsequently honored with the Kenneth B. Smilen/Present Tense Literary Award for best general nonfiction Jewish book of 1983.

## November 11

**Exhibition:** *Masterpieces from Versailles: Three Centuries of French Portraiture*, a major loan exhibition from the Museum of the Chateau of Versailles, opened at the National Portrait Gallery.

## November 12-13

**Symposium:** The Third National Zoological Park Symposium for the Public, "Perceptions of Animals in American Culture," featured ten specialists who gave presentations on the anthropomorphisms at the core of many human perceptions of animals.

## November 17

**Milestone:** The Archives of American Art began its thirtieth year. The Archives was founded in Detroit in 1954 and became a bureau of the Smithsonian in 1970.

## November 18

**Research:** The death of hundreds of thousands of square kilometers of reef coral in the Pacific Ocean and Caribbean Sea, one of the most widespread reef devastations of the past several hundred years, was documented by scientists of the Smithsonian Tropical Research Institute and described in *Science* magazine.

## November 21

**Anniversary Celebration:** The 200th anniversary of manned flight was celebrated at the National Air and Space Museum with the opening of a multimedia presentation, "The Oldest Dream: A Celebration of Flight," and an exhibition, *Dr. Franklin's Window: American Witnesses to the Birth of Flight*. A book, *The Eagle Aloft: Two Centuries of the Balloon in America*, was also written for the occasion.

## November 30

**Lecture:** Dr. René Bravmann, guest curator of the exhibition *African Islam* and professor of art history, University of Washington, Seattle, presented an illustrated lecture on "African Islam: The Artistry and Character of Belief," in conjunction with the opening of the exhibition at the National Museum of African Art.

## December

**Awards:** Smithsonian staff members won fifteen awards, including best in show, in the 1983 publications competition of the Washington, D.C., chapter of the Society for Technical Communications. Winning entries included a brochure on tropical research produced by the Office of Public Affairs, OPA Smithsonian News Service stories, *The Torch*, *Research Reports*, stories in *Research Reports*, and publications from the National Air and Space Museum.

## December

**Anniversary:** "Smithsonian Galaxy," a series of two-minute features for radio produced by the Office of Telecommunications and heard on 230 radio stations in this country and abroad, celebrated its fifth anniversary on the air.

## December

**Research:** Museum of Natural History geologist Dr. Robert Fudali joined a National Science Foundation-funded research team in a search for meteorites on the plateau west of the Transantarctic Mountains that resulted in the discovery of some 300 meteorites which were sent back to the museum for study.

## December

**Workshop Series:** The Kellogg Project, Office of Museum Programs, held a series of six regional workshops from December to March on "Museums as Learning Resources" in Charlotte, North Carolina; San Antonio, Texas; Portland, Oregon; Toledo, Ohio; Boston; and New York.

## December

**Publication:** The Smithsonian Institution Libraries Research Guide Number 3, *The Aerospace Periodical Index 1973-1982*, was published by G. K. Hall.

## December

**Research:** New limits on how much the gravitational constant G may vary with time were established by Smithsonian Astrophysical Observatory scientists Robert Babcock, John Chandler, Robert Reasenberg, and Irwin Shapiro using radar-ranging data from a Viking lander on Mars.

## December 1

**Exhibition:** *Sawtooths and Other Ranges of Imagination: Contemporary Art from Idaho* opened at the National Museum of American Art with forty-one works by twenty-eight artists documenting the fine arts in Idaho. Five of these Idaho artists participated in a related panel discussion.

## December 3 and 4

**Special Event:** *Berlin Alexanderplatz*, a two-day marathon screening of Rainer Werner Fassbinder's film epic, was sponsored by the Resident Associate Program.

## December 5

**Regent:** The nomination of Samuel Curtis Johnson, chairman and chief executive officer of S. C. Johnson & Son Inc., as a citizen member of the Smithsonian Board of Regents was signed into law by President Reagan.

## December 7

**Seminar:** "Computers and Human Learning," a conference cosponsored by the Office of Elementary and Secondary Education and the Office of Symposia and Seminars, brought more than 300 local school administrators to learn about the impact of computer technology on education.

## December 7-9

**Conference:** Dr. William H. Klein and Dr. David L. Correll of the Smithsonian Environmental Research Center attended the Tristate Conference on "Choices for the Chesapeake Bay" held at George Mason University in Fairfax, Virginia.

## December 7-10

**Symposium:** "The Road After 1984: High Technology and Human Freedom," the Smithsonian's eighth international symposium, examined the contemporary revolution in technology and communications.

## December 8

**Exhibition:** *Dreams and Nightmares: Utopian Visions in Modern Art*, an exhibition of 136 works by 62 American and European artists of the twentieth century, opened at the Hirshhorn Museum.

## December 9

**Special Event:** The Smithsonian Women's Committee held its thirteenth annual Christmas fundraiser dinner-dance, "A Dickens' Christmas," in the National Museum of Natural History.

## December 9

**Royal Visit:** A reception was held at the National Air and Space Museum for King Birendra and Queen Aishwarya of Nepal.

## December 9-11

**Milestone:** The National Associates Travel Program celebrated its twelfth annual Christmas at the Smithsonian Weekend for Smithsonian Associates. The program was highlighted by a festive dinner and tree-trimming party in the Castle.

## December 11

**Appointment:** William W. Moss was appointed Smithsonian Archivist.

## December 14

**Exhibition:** The seventh annual *Trees of Christmas* exhibition opened at the National Museum of American History and included twelve trees decorated to display the ethnic, artistic, and cultural use of the Christmas tree. The exhibit was prepared by the Office of Horticulture.

## December 14-16

**New Program:** The Office of Museum Programs sponsored a new workshop on "The Video Revolution: Museum Audiovisuals, Videotape Production Techniques, Video Disks, and Teleconferencing" and their application in museums.

## December 15

**Acquisitions:** Twenty-three works by twentieth-century modernist Man Ray, a gift from artist's widow, were accessioned by the National Museum of American Art.



### December 15

**New Project:** The loading of record unit data from the Smithsonian Archives into the Smithsonian Institution Bibliographic Information System began.

### December 16

**Gift:** The kingdom of Saudi Arabia pledged \$5 million toward the construction and development of the Smithsonian Institution's International Center, one of the major components of the Center for African, Near Eastern, and Asian Cultures.

### December 16

**Special Event:** A coffee was held by Mrs. George Bush at the Vice-President's Residence to honor Mrs. Dillon Ripley as founder of the Smithsonian Women's Committee and to confer the title of honorary life member.

### December 16

**Symposium:** "The Wright Flyer: An Engineering Perspective," a National Air and Space Museum program marking the eightieth anniversary of the first flight of the Wright brothers, brought together engineers and scholars to examine the technical achievements embodied in the 1903 Wright Flyer. One of the original propellers was presented to the museum by Wilkinson Wright, a grandnephew of the Wright brothers.

### December 17

**Exhibition:** 'O, Write My Name': *American Portraits, Harlem Heroes*, photographs of black Americans by Carl Van Vechten, opened at the National Portrait Gallery.

### December 27

**Acquisitions:** The Archives of American Art received as a gift the papers of Jackson Pollock, major abstract expressionist artist.

### December 31

**Record Set:** Visitors toured the Smithsonian museums in ever-increasing numbers in 1983 with a record-setting 25.8 million visits, an increase of 1.1 million over the previous high in 1978.

### January

**Foundation:** A foundation to assist the Smithsonian with its collection of patent models was created as a result of an exhibition on patent models and its award-winning catalogue.

### January

**Research:** Museum of Natural History botanists discovered red algae growing at a depth of 880 feet on an uncharted seamount off the Bahamas, a new maximum depth record for photosynthetic plant life on earth.

### January

**Grants Review:** The Office of Fellowships and Grants convened advisory councils to approve Smithsonian Foreign Currency Program grants.

### January

**Milestone:** Membership in the Smithsonian National Associate Program exceeded two million for the first time.

### January 3

**New Project:** Work began on a two-year project to survey and describe still-photograph collections throughout the Smithsonian.

### January 12

**Milestone:** James T. Demetrion, director of the Des Moines Art Center, was selected to be director of the Hirshhorn Museum and Sculpture Garden to succeed founding director Abram Lerner.

### January 18

**TV Show:** "Smithsonian World," a new seven-part television series, premiered over Public Broadcasting stations, with author and historian David McCullough as host. The hour-long programs, coproduced by WETA (Washington, D.C.) and the Smithsonian, focused on Smithsonian-related science, art, and history, and were made possible by a grant from the James S. McDonnell Foundation.

### January 21

**Film Premiere:** *Free Show Tonite*, a film documenting a reunion of retired medicine show performers in Bailey, North Carolina, premiered at the National Museum of American History. The film was produced in cooperation with the Office of Folklife Programs.

### January 23

**Ninth Secretary:** The Board of Regents announced the appointment of Robert McCormick Adams, distinguished anthropologist and archeologist and Provost of the University of Chicago, to be the ninth Secretary of the Smithsonian Institution, effective September 17, 1984.

### January 23

**New Project:** Work began on a survey of scientific illustrations and drawings throughout the Smithsonian.

### January 23

**Outreach:** Dr. Robert Stuckenrath presented a course on "Radiocarbon Dating and Interpretation" to graduate students and upper-level undergraduate students in anthropology and geology at the University of Pittsburgh.

### January 28

**Lecture:** "White Dwarfs or Black Holes: How Will a Star End Its Life?" First in the series of five monthly lectures, *The Cutting Edge of Science*, presented free of charge for science-oriented high school students by the Resident Associate Program.

### January 31

**Appointment:** Dr. Michael H. Robinson, deputy director of the Smithsonian Tropical Research Institute, was appointed director of the National Zoological Park.

### February

**Black History Month:** Activities were scheduled throughout the Institution to mark Black History Month. Among the highlights were a two-day colloquium, presented by the Black American Culture Program, on the evolution of the spiritual, a film series on the beginnings and growth of Harlem, and an

evening with actor Geoffrey Holder. Exhibits, concerts, tours, children's theater, dance, lectures, and poetry readings were also presented by the Resident Associate Program, the Anacostia Neighborhood Museum, and the Museums of American History, African Art, American Art, and Natural History.

### February

**Milestone:** The Multiple Mirror Telescope was used to make the first measurements of possible proto-galaxy-sized gas clouds seen at cosmological distances. The international team of scientists, including Smithsonian Astrophysical Observatory researcher Fred Chaffee, used an observational technique employing a natural gravitational lens in space.

### February

**Exhibition:** *The Art of Cameroon*, an exhibition organized by the Smithsonian Institution Traveling Exhibition Service to survey the significance and splendor of one of Africa's major art traditions, began its United States tour at the Museum of Natural History.

### February

**Fieldwork:** Museum of Natural History scientists began participation in an international interdisciplinary biological investigation of Cerro de la Neblina, one of the largest and highest of the unexplored mesas (tepui) in southern Venezuela's "Lost World" wilderness region.

### February

**Lecture:** The Smithsonian Office of Educational Research director, John Falk, delivered five lectures in Recife, Brazil, on "Museums as a Community Learning Resource." The lectures, cosponsored by the Universidade Federal de Pernambuco and the U.S. Information Agency, were addressed to museum professionals of northeastern Brazil.

### February 1

**Milestone:** The Smithsonian marked the twentieth anniversary of S. Dillon Ripley as eighth Secretary of the Institution with a staff reception attended by Vice-President George Bush and regents Carl Humelsine and Jeannine Clark. Mr. Ripley's tenure was marked by the establishment of eight museums, the Associate programs, the *Smithsonian* magazine, the Festival of American Folklife, many research and educational programs, and the launching of the Smithsonian's Center for African, Near Eastern, and Asian Cultures.

### February 7

**Film Premiere:** *In Palo at Laskiainen, Everyone is a Finn*, a film produced by the Office of Folklife Programs as part of the Smithsonian Folklife Studies Series and documenting a Finnish-American mid-winter festival in Palo, Minnesota, premiered in Palo.

### February 7

**Grants Award:** The second year's James E. Webb Fellows were announced.

### February 10-11

**Workshop:** "Collections Management: Preventive Care, Conservation, Handling and Storage," an on-site workshop sponsored by the Office of Museum Programs, was held at the Historic Columbia Foundation in cooperation with the South Carolina State Museum and the South Carolina Federation of Museums.

## February 14-16

**Special Event:** Noted composer Virgil Thomson shared his reminiscences of Natalie Barney's Paris salon of the 1920s at a musical program held at Barney Studio House.

## February 14-March 3

**Research:** Ecologists James Lynch, Dennis Whigham, and Eugene Morton, in cooperation with Mexican scientists, assessed the effects of several agricultural techniques on migratory and resident bird populations in the Yucatan Peninsula.

## February 21

**New Programs:** The Archives of American Art established a regional office in the Los Angeles area at the Huntington Library and Art Gallery. Stella Paul was appointed area collector.

## February 21

**Lecture:** Dr. Thurston Shaw, former professor of archeology, University of Ibadan, Nigeria, presented an illustrated lecture on "Archeology and History in Africa."

## February 23

**Exhibition:** The inflight suit of astronaut Guion S. Bluford, Jr., America's first black astronaut in space, went on display.

## February 23

**Performance:** The Gewandhaus Bäch Orchestra of Leipzig, in its first North American tour, presented a concert of Bach, Haydn, and Shostakovitch, sponsored by the Resident Associate Program.

## February 23

**International Protocol:** An agreement was signed with the University of Culture of Tunisia to promote exchanges in chronological history, conservation, and research.

## February 28

**Special Event:** The president of Austria, Rudolf Kirchsclaeger, addressed students enrolled in the Resident Associate Program course, "Vienna at the Turn of the Century," during his first state visit to the United States.

## February 28

**Appointment:** Milo Cleveland Beach, chairman of the department of art at Williams College, was named to head the Arthur M. Sackler Gallery, a component of the Smithsonian's Center for African, Near Eastern, and Asian Cultures.

## March

**Award:** Janet W. Solinger, director of the Resident Associate Program, was presented the Officer's Cross of the Order of Merit by the government of the Federal Republic of Germany for her contributions to the celebration of the German-American Tricentennial, commemorating the first arrival of German immigrants to America in 1683.

## March

**Audio-visual Project:** In cooperation with the Office of Telecommunications, the Visitor Information and Associates' Reception Center produced a videocassette for use at travel-industry market places and tourist sites.

## March

**Exhibition:** The Museum of Natural History opened *Exploring Microspace*, an exhibition tracing the evolution of the microscope from the seventeenth century to the electronic age.

## March

**Publication:** *The Card Catalog of the Oral History Collections of the Archives of American Art* was published by Scholarly Resources, Inc.

## March

**Conference:** Members of the Smithsonian Office of Educational Research participated in the Groves Conference on Marriage and the Family held in Pinehurst, North Carolina, with presentations addressing the family as an educational unit.

## March 9–April 10

**New Program:** The first graduate field course in tropical ecology was conducted in conjunction with the University of Panama.

## March 15

**Exhibition:** In the first of a series of exhibitions celebrating its tenth anniversary, the Hirshhorn Museum opened *Drawings: 1974–1984* with 148 drawings by 30 artists. Artist Christo lectured on May 13.

## March 16

**Exhibition:** 'Adventurous Pursuits': *Americans and the China Trade, 1784–1844*, a celebration of the 200th anniversary of the opening of trade between America and China, opened at the National Portrait Gallery.

## March 28

**Special Event:** "What's Up, Doc? An Anniversary Evening with Mel Blanc," creator of the voice of Bugs Bunny, celebrating his fifty years in show business. Sponsored by the Resident Associate Program.

## March 28

**New Program:** The Archives of American Art began a special project of collecting in Philadelphia, where the Archives' first project was located in 1954.

## March 30

**Special Event:** The Contributing Membership Annual Ball was held in the Grand Salon of the Renwick Gallery. The Office of Horticulture mounted a display of hundreds of cymbidium orchids and other spring flowers.

## April

**Grant:** The National Endowment for the Arts awarded the Theater Historical Society of America a \$30,000 grant for the Office of Telecommunications to produce an expanded version of the exhibition film *American Picture Palaces*, creating a half-hour program. The exhibition film has received fourteen major awards during fiscal year 1984, including a Gold Award from the International Film and TV Festival of New York and a CINE Golden Eagle.

## April

**Milestone:** A method to artificially incubate and hatch eggs of the green iguana, developed by scientists at the Smithsonian Tropical Research Institute, was used to hatch 700 green iguanas, the first to be hatched in captivity with virtually 100 percent success. This achievement is a breakthrough toward the goal of commercial production of iguanas as a food source in Latin America.

## April

**Exhibition:** *Roger Tory Peterson at the Smithsonian*, a retrospective exhibition of Peterson's bird art marking the fiftieth anniversary of the publication of his influential book *A Field Guide to the Birds*, opened at the National Museum of Natural History. Peterson was awarded the James Smithson Bicentennial Medal.

## April

**Exhibition:** The National Museum of Natural History celebrated the 100th Anniversary of the National Gem Collection. Associated events included a Smithsonian Associate lecture and an all-day seminar. Two major new additions to the gem collection were placed on long-term display: a 182-carat sapphire and a 318-carat black opal.

## April

**Findings:** Analysis of Einstein Observatory data by Smithsonian Astrophysical Observatory scientists Fred Seward and Rick Harnden and a colleague at Columbia University revealed the presence of a rapidly spinning X-ray pulsar in the Large Magellanic Cloud, only the second example found outside our galaxy.

## April

**Publication:** The Smithsonian Office of Educational Research announced publication of *The Smithsonian Family Learning Project 1985 Science Calendar*, which features, in poster format, one brightly illustrated science activity per month. The calendar is intended to promote enjoyment of learning science at home as a family endeavor.

## April 1

**Exhibition:** *Black Wings*, a SITES exhibition supplemented with selected artifacts and memorabilia, opened at the Anacostia Neighborhood Museum, focusing attention on American black pioneers in aviation whose historic role helped shape the growth and development of modern aviation.

## April 4

**Exhibition:** *German Expressionist Sculpture*, with more than 120 examples by 33 artists, opened at the Hirshhorn Museum.

## April 5

**Exhibition:** *Golden Age of Flight*, a major exhibition gallery devoted to aviation from 1919 to 1939, opened at the National Air and Space Museum.

## April 5

**Research:** The Smithsonian Astrophysical Observatory's one-meter infrared telescope, equipped with a photometer prepared by the Naval Research Laboratory, was carried to an altitude of 95,000 feet by a balloon launched from Texas. The nine-hour flight of the instrument—its eighteenth—resulted in the successful mapping of seven regions of suspected star formation.

#### **April 7**

**Concert:** Djione Kouyate, from Senegal, presented a "Program of Music, Dance and Folklore" illustrating the influence of Islamic culture and belief on the performing arts of sub-Saharan Africa.

#### **April 8**

**International Conference:** A UNESCO/Smithsonian-sponsored conference convened at the Smithsonian in Washington, D.C., to promote general awareness in the North American news media of international activities related to historic preservation.

#### **April 10**

**Research:** A small, helium-cooled, infrared telescope scheduled for launch aboard a Space Shuttle in March 1985 successfully completed its testing and was shipped to Cape Kennedy for integration with the twelve other instruments that will make up the Spacelab 2 experiment package. The telescope is a joint project of SAO, the University of Arizona, and NASA's Marshall Space Flight Center.

#### **April 15**

**Grants:** The Office of Fellowships and Grants designated 1984-85 fellowship recipients.

#### **April 16**

**Milestone:** First on-line bibliographic search from Smithsonian Tropical Research Institute Library in Panama with Dialog Program in Palo Alto, California.

#### **April 17**

**Exhibition:** His Highness Sayyid Faisal bin Ali Al-Said, minister of National Heritage and Culture of Oman, formally opened an exhibit of cultural treasures of his country, one of the oldest political entities in the Arabian Peninsula.

#### **April 20**

**International Protocol:** An agreement was signed with the University of Culture, Sports, and Tourism of Pakistan to further cooperation in universal and cultural history and conservation.

#### **April 21**

**Special Event:** The Office of Elementary and Secondary Education's Teachers' Day, held in the Discovery Theater, featured presentations by Native American students from Deep Branch Elementary School (Robeson County, North Carolina), showing teachers how to use art and dramatics to teach a variety of subjects.

#### **April 27-29**

**Special Event:** The second annual Washington Craft Show, a fundraising event sponsored by the Smithsonian Women's Committee, included 100 craftspeople selected to exhibit and sell their work at the Departmental Auditorium, presenting crafts as fine art.

#### **April 30**

**Major Acquisition:** *Mary Cassatt*, a portrait by Edgar Degas, was purchased with funds from the Morris and Gwendolyn Cafritz Foundation and the Smithsonian.

## May

**Award:** The Office of Telecommunications received a Gold Screen Award from the National Association of Government Communicators for its nationally broadcast radio series, "Radio Smithsonian" and "Smithsonian Galaxy."

## May

**Publication:** A new edition of *Guide to the Nation's Capital and the Smithsonian Institution* was produced by the Visitor Information and Associates' Reception Center in cooperation with *Smithsonian* magazine.

## May

**Study:** "The Smithsonian: Enhancing the Visitor's Experience," a design study completed by George Washington University's Department of Urban and Regional Planning for the Visitor Information and Associates' Reception Center, recommended the adoption of an Institution-wide exterior graphic information system.

## May

**Grant:** The Smithsonian Office of Educational Research received funding from the National Science Foundation to initiate a pilot project in community-based science education that will include business and industry, university and government research laboratories, educators and families, who will develop a strategy for sharing science education responsibilities and benefits.

## May

**Award:** The Office of Telecommunications received a Gold Award from the Houston International Film Festival for its nationally distributed video series, "Here at the Smithsonian. . ."

## May

**Truman Centennial:** The Smithsonian joined in a tribute to the centennial of the birth of Harry S Truman, thirty-third President of the United States, with tours, films, exhibits, a musical revue, seminar, and a six-week course on Truman and his presidential decisions.

## May 3

**Special Event:** A country music gala, "Salute to Roy Acuff," was held to benefit the Kennedy Center.

## May 3

**Award:** *Guide to the Smithsonian Archives, 1983*, received the Mid-Atlantic Regional Archives Conference award for excellence in archival finding aids.

## May 4

**Special Event:** The Museum of American History opened the Palm Court, which encompasses a reading/relaxing area, informal concerts, an ice cream parlor, and two exhibit areas.

## May 9

**Awards:** Secretary S. Dillon Ripley was named corecipient of the "OLYMPIA" Prize 1983 by the Alexander S. Onassis Public Benefit Foundation. The award was presented in Athens by Constantine Karamanlis, president of Greece.

## May 10-13

**Special Event:** The Friends of the National Zoo organized and coordinated the construction of outdoor exercise structures in the panda yards.



### May 11

**Exhibition:** Honoring the 150th anniversary of the birth of James McNeill Whistler, the Freer Gallery opened an exhibit of all of its oils, watercolors, pastels, and drawings—some 300 works—by Whistler, as well as his only surviving architectural scheme, the Peacock Room. Freer Gallery attendance during the exhibit increased 50 percent over the comparable 1983 period.

### May 12

**Dedication:** An Amateur Astronomy Vista, constructed with a grant from the Smithsonian Society, was officially opened by SAO's Whipple Observatory for the use of Southern Arizona amateur astronomers.

### May 12–June 14

**Special Program:** The Office of Museum Programs and the U.S. Information Agency cosponsored the fifth annual "Education in Museums" project for thirteen museum professionals from nine foreign countries to study museum education techniques at the Smithsonian and other museums throughout the United States.

### May 14–16

**Conference:** National Zoo's Office of Education conducted a Zoo Educators Conference to discuss current and future goals of zoo education efforts.

### May 14–16

**Workshop:** Environmental chemist David Correll participated in a workshop at Lake Itasca, Minnesota, on long-term ecological research and presented a paper, "Application of a Long-Term Mass-Balance Approach to the Analysis of Nutrient Dynamics in Complex Land/Water Landscapes."

### May 14–18

**Symposium:** The 24th Annual International Archaeometry Symposium, organized by Jacqueline Olin and James Blackman of the Conservation Analytical Laboratory, was held at the Museum of Natural History with approximately 200 attendants from sixteen countries.

### May 15

**Fellowship:** Designer George Nelson was appointed a Regents Fellow at the Cooper-Hewitt Museum.

### May 15

**Symposium:** "Vertical Flight: The Age of the Helicopter," National Air and Space Museum, included aviation pioneers and presentations on vertical flight.

### May 17

**Special Events:** The Friends of the National Zoo conducted "Zoofari," a dinner party designed to be a major fundraising activity for the newly established Theodore H. Reed Animal Acquisition Fund.

### May 18

**Acquisition:** Viking Lander I was officially transferred from the National Aeronautics and Space Administration to the collection of the National Air and Space Museum. This museum is now the only one in the world to possess an object on another planet—the Viking Lander I is located on the surface of Mars.

### May 18

**Milestone:** Graduation of the first class of the master's degree program in European decorative arts, a project undertaken jointly with the Cooper-Hewitt Museum and the Parsons School of Design.

### May 19

**Film Premiere:** *The Stone Carvers*, a documentary film about the traditional stone carvers at the Washington Cathedral, premiered at the Museum of Natural History. It was produced in cooperation with the Office of Folklife Programs.

### May 21

**Seminar:** Dr. Charles Cleland presented a series of seminars on "The Hormonal Control of Flowering" to the Universities of Poznan, Prague, and Liblice, Czechoslovakia, and the Czechoslovakia Academy of Science in Prague, as well as the University of Freiburg, West Germany.

### May 22

**Special Event:** An Evening with Edward L. Bernays, the "father of public relations," was part of the self-portrait series of the National Portrait Gallery.

### May 23

**Exhibition:** *Ethiopia: The Christian Art of an African Nation* opened at the National Museum of African Art.

### May 24

**Milestone:** The National Air and Space Museum welcomed its 75 millionth visitor since the opening of the building, July 1, 1976.

### May 28

**Film:** *Lou Stovall*, a documentary film showing the artist's techniques of fine silk-screen printing, was shown at the Educational Film Industry Association's 26th American Film Festival in New York City. The film was produced by exhibit designer Sharon Reinckens and photographer Chris Capilongo, Anacostia Neighborhood Museum.

### May 30-June 3

**Special Event:** The National Associates Travel Program sponsored the first weekend program designed especially for Contributing Members to visit with directors and curators at selected museums.

### June

**Awards:** The first recipients of the recently created Order of James Smithson were announced: Enid A. Haupt, who has pledged \$3 million for a garden to be created in the Quadrangle area, and Arthur M. Sackler, who has pledged \$4 million toward the construction of a museum to house the 1,000 masterpieces of art he also has donated.

### June

**Acquisition:** The Freer Gallery acquired, through gift and purchase, a significant collection of twenty-nine ancient Chinese ceramic objects, including three pieces that have survived more than 3,000 years in perfect condition. This acquisition gives the Freer the finest collection of early Chinese ceramics in the United States.

## June

**Acquisition:** The Sara Roby Foundation of New York City donated 169 paintings, sculptures, and drawings—an extraordinary collection of twentieth-century realistic art—to the National Museum of American Art.

## June

**Special Event:** An honors ceremony was held for 1983–84 Smithsonian Fellows.

## June

**Awards:** Several dozen Smithsonian staff members won awards this month in the field of communication for outstanding photography, publications, radio and television productions, films, feature stories, and posters. The awards were sponsored by the Professional Photographers of America/Eastman Kodak, the National Association of Government Communicators, the American Association of Museums, the Houston International Film Festival, and the Society for Technical Communication.

## June

**Award:** *Remembrance of Lilacs—John Robinson*, a documentary slide/audio show produced by Sharon Reinckens and Chris Capilongo, Anacostia Neighborhood Museum, won the National Association of Government Communicators (NAGC) Gold Screen Award for outstanding audio-visual production.

## June

**Public Service Announcement:** Astronaut Guion “Guy” Bluford donated his time to appear as narrator in a thirty-second television public service announcement produced by the Office of Public Affairs. The announcement emphasized the theme “Explore Your Heritage” and was aimed at encouraging visits to the Smithsonian by members of the black community.

## June

**Film Premiere:** *The Work of Peace*, a film produced by the Office of Telecommunications to commemorate the 200th anniversary of the signing of the 1783 Treaty of Paris, premiered in Washington, D.C. The film will be distributed to high schools throughout the country.

## June

**Outreach:** Special Education Outreach funds received by the Smithsonian Office of Educational Research supported the development of a SAIL (Science Activities for Informal Learning) Teacher’s Guide and an Evaluation Strategy, which summarizes the guide’s effectiveness based upon training experience in two Maryland counties.

## June 2–5

**Special Event:** Summerfest ‘84, a four-day, park-wide celebration of music, dance, and mime, took place at ten different locations around the National Zoo.

## June 2-16

**Special Event:** A British-American Festival marking the 400th anniversary of the arrival of the first British expedition to North America at Roanoke Island, North Carolina, was cosponsored by the Smithsonian Office of Symposia and Seminars.

#### June 4

**Grants:** The Smithsonian Institution Libraries received two grants from the Atherton Seidell Endowment Fund, one for the retrospective conversion of its catalogue and the second for the purchase of scientific serials on microfilm.

#### June 8

**Exhibition:** *Erastus Salisbury Field, 1805–1900*, the first comprehensive exhibition of works by this American folk artist, organized by the Springfield (Massachusetts) Museum of Art, opened jointly at the National Portrait Gallery and the National Museum of American Art.

#### June 9

**Exhibition:** *Artistic Collaboration in the Twentieth Century*, with more than 100 works created by some seventy teams of artists between 1913 and 1984, opened at the Hirshhorn Museum.

#### June 10–14

**Conference:** The American Association of Museums hosted two panel discussions, with director John Kinard as moderator, that considered possible funding strategies for minority museums, giving Third World and traditional museum professionals a chance to talk with representatives from foundations and the corporate world.

#### June 11

**Acquisitions:** The National Museum of American Art announced the gift of 169 twentieth-century paintings and sculptures from the Sara Roby Foundation of New York.

#### June 11

**Reinstallation:** The National Museum of American Art opened its refurbished and reinstalled public exhibition galleries, presenting chronologically 250 years of American art—the first complete reinstallation since 1968.

#### June 11

**Internships:** The first session of "Intern '84" began—the Office of Elementary and Secondary Education's high school intern program, which brought thirty-four students to Washington, D.C., from as far away as California, Washington state, and Maine to participate in a learning/service program.

#### June 12

**Gift:** Jayathu, an eighteen-month-old Asiatic elephant, a gift from J. R. Jayewardene of Sri Lanka to President Reagan, arrived at the National Zoo. Jayathu subsequently suffered from an apparent allergic reaction to her infant formula and died on August 30.

#### June 14–22

**Research:** Ecologist Dennis Whigham participated in organizing a symposium for the second International Wetlands Conference, Trebon, Czechoslovakia.

#### June 20

**Milestone:** Smithsonian Institution Libraries started processing on its automated library system.

#### June 23

**Summer Program:** The Office of Elementary and Secondary Education's sum-

mer seminar program for teachers began, offering ten different courses in the arts, sciences, and history.

#### June 23

**Special Event:** A "Festival of African Games" was held at the Museum of African Art and included the making of African mankala gameboards, methods of playing Africa's most popular board game, and a variety of traditional African children's games.

#### June 27–July 1; July 4–8

**Folklife Festival:** The eighteenth annual Festival of American Folklife featured Alaskan folklife, the folklore of America's older generation, traditional culture of urban blacks from Philadelphia, and traditional foodways.

#### June 27

**Exhibition:** *Southeastern Potteries*, organized by the Office of Folklife Programs for the Smithsonian Institution Traveling Exhibition Service and featuring works from the thirty-five traditional potteries still operating in the southern United States, opened at the National Museum of American History.

#### June 29

**Special Event:** The Smithsonian Institution Libraries announced the inauguration of a new sequence in its Translation Publishing Program.

#### June 30

**Fundraising:** A campaign to raise \$37.5 million of private support for the construction of the Quadrangle was successfully concluded through contributions from individuals, corporations, and foundations, both foreign and domestic, and from Smithsonian trust funds.

#### July

**Grant:** The Rockefeller Foundation Residency Program in the Humanities awarded the Smithsonian Institution a grant for postdoctoral fellowships at the National Museum of African Art and the Center for Asian Art.

#### July

**Grant:** The James Smithson Society awarded a \$23,000 grant to the Office of Telecommunications for the production of a pilot program of a potential television series for children aged nine to twelve.

#### July

**Research:** Archeological discoveries made in Labrador by Dr. William G. Fitzhugh provide a clearer picture of how early Maritime Archaic peoples lived. Early single-family round or oval pithouses dug into boulder beaches were found and excavated on islands off the Labrador coast.

#### July

**Contract:** A Smithsonian Astrophysical Observatory proposal for a "Wide-field and Diffraction-limited Array Camera" was accepted by the National Aeronautics and Space Administration for inclusion in the "definition study phase" of the planned Space Infrared Telescope Facility.

#### July

**TV Spot:** Stage and television actress Sandy Duncan donated her time and talents to narrate a package of television public service announcements aimed at showing the Institution's attraction for children. The package will be dis-

tributed for the 1985 tourist season to the 300 largest television stations in the country, reaching every state.

#### July 1

**Publication:** *The Phenomenon of Change*, edited by Lisa Taylor, director of the Cooper-Hewitt Museum, was published.

#### July 4

**Special Event:** A concert and reading of the Declaration of Independence celebrated the installation of a nineteenth-century bandstand on the grounds of the National Museum of American History.

#### July 9

**Milestone:** The Resident Associate course, "Toward 2001: Visions of America's Future," was broadcast nationwide by C-Span cable television, resulting in hundreds of requests for video tapes and/or transcripts.

#### July 13

**Appointment:** Ann R. Leven was named Treasurer of the Smithsonian Institution, effective August 1984.

#### July 17

**Awards:** James Smithson Society grants, totaling \$220,000, were awarded to nine Smithsonian units for publications, acquisitions, research, film and TV projects.

#### July 20

**Symposium:** "The Apollo Legacy," held at the National Air and Space Museum to mark the fifteenth anniversary of the Apollo 11 lunar landing, brought together five scientists and four former Apollo astronauts to review the scientific impact of the Apollo missions.

#### July 25

**Reintroduction:** Eight U.S.-born golden lion tamarins were released into the wilds of Brazil's Poco das Antas Biological Preserve. Fifteen animals had been sent to Brazil in November 1983 as part of a reintroduction program, and nine of them had been introduced to a half-way cage located in the wilds on May 2, 1984.

#### August

**Acquisition:** The Smithsonian Institution Libraries acquired a collection of materials on Indonesia and other parts of Southeast Asia that had been assembled by the late Professor John Echols of Cornell University.

#### August

**Exhibition:** *Treasures from the Shanghai Museum: 6,000 Years of Chinese Art*, the most comprehensive major Chinese art exhibition ever to tour the United States, opened at the National Museum of Natural History, featuring 232 masterpieces from one of China's leading museums, organized by the Asian Art Museum of San Francisco in cooperation with the Shanghai Museum.

#### August

**TV Show:** The James S. McDonnell Foundation renewed its underwriting commitment to the Smithsonian World television series with a grant of \$3.5 million, making possible a second season to consist of five one-hour specials airing in 1985 and 1986.

### August 5

**Birth:** A giant panda cub was stillborn. The mother, Ling-Ling, had suffered a kidney infection during December and January, but two natural matings occurred on March 19, 1984, resulting in pregnancy.

### August 6-10

**Conference:** A conference on "Genetic Management of Captive Populations," held at the National Zoo's Conservation and Research Center, sought to establish goals and methods for long-term management of captive populations.

### August 9

**Exhibition:** *Yesterday's Tomorrow: Past Visions of America's Future* opened in the National Museum of American History's new temporary exhibition hall. Produced by the Smithsonian Institution Traveling Exhibition Service, the exhibition displayed more than 300 objects to show how people in the past have predicted the future.

### August 9

**Dedication:** A feeder tree for Smokey bear, funded by the Forest Service, was designed and constructed by the Zoo staff. The tree dispenses food pellets and honey automatically at random times or upon radio-controlled command.

### August 11

**Exhibition:** *Treasures from the Smithsonian Institution* opened at the Royal Scottish Museum in conjunction with the thirty-eighth annual Edinburgh International Festival. The exhibition was organized by the Smithsonian Institution Traveling Exhibition Service, designed and produced by the Office of Exhibits Central, and coordinated by the Office of Public Service. Symposia and musical performances were also presented in conjunction with the exhibition.

### August 22

**Cultural Accord:** A cultural exchange agreement between the Smithsonian and the kingdom of Morocco, signed earlier this year, was observed by Secretary Ripley, the Moroccan Ambassador to the United States, and the United States Ambassador to Morocco.

### August 27

**Acquisition:** A 168-carat emerald, a bequest of Anna Cast Mackay to the Smithsonian Institution National Gem Collection, was placed on permanent display in the National Museum of Natural History.

### September

**Film:** *The Sea: A Quest For Our Future*, a one-hour documentary produced by the Office of Telecommunications on Smithsonian research on tropical coral reefs, was completed.

### September 5

**Special Event:** An evening of special animal training demonstrations at the National Zoological Park was offered to Contributing Members at the Sponsoring level and above.

### September 12

**Special Event:** "A Centenary Tribute to Eleanor Roosevelt," the first of the 1984-85 Frank Nelson Doubleday Lectures of the National Museum of Amer-

ican History, featured an examination of the life of Eleanor Roosevelt by radio commentator Susan Stamberg and actress Jean Stapleton.

#### September 13

**Exhibition:** *Eleanor Roosevelt: First Person Singular*, a tribute marking the centennial of her birth, opened at the National Museum of American History.

#### September 14

**Lecture:** Smithsonian Associates participating in the sixth annual Smithsonian/Oxford Seminar attended a convocation and reception in the Castle before departing for England.

#### September 14

**International Protocol:** An agreement was signed with the University of Culture of the Republic of Indonesia to develop cooperation in national and cultural history and conservation.

#### September 15-16

**Special Event:** The annual weekend for members of the James Smithson Society was held. It included a formal dinner at the National Museum of American History to honor members of the society and the National Board of the Smithsonian Associates and to honor Secretary Ripley upon his retirement.

#### September 16

**Awards:** The Board of Regents conferred the Order of James Smithson on Secretary S. Dillon Ripley, citing "his singularly outstanding service," and the Joseph Henry Medal to Mary Livingston Ripley, the first woman to receive this award, for her work on behalf of the orchid and entomology collections and in establishing the Smithsonian Women's Committee.

#### September 17

**Installation:** Public ceremonies installing Robert McC. Adams as ninth Secretary of the Institution were held on the Mall in front of the original Institution Building. Ceremonies included presentation of the key to the Smithsonian to Mr. Adams by Chief Justice Burger as Chancellor of the Institution, remarks by the Chief Justice, Mr. Ripley, and Mr. Adams, and music by the U.S. Naval Ceremonial Band.

#### September 18

**Benefit Premiere:** *Amadeus*, Washington film premiere with a costumed Viennese concert/café, was held for the benefit of Discover Graphics, the first benefit sponsored by the Resident Associate Program.

#### September 19

**Organization:** The establishment of a Directorate of International Activities was announced by Secretary Adams, effective October 1. John E. Reinhardt, assistant secretary for history and art, was named director, with responsibility for the International Center, a component of the Center for African, Near Eastern, and Asian Cultures, the Office of International Activities, and the International Exchange Service.

#### September 20

**Special Event:** His Holiness, the Dalai Lama, presented a lecture titled "The Unique Tibetan Culture," the opening event of a Resident Associate Program



course on Tibetan Buddhism. He was welcomed and introduced by Secretary Adams.

**September 25**

**Seminar:** The Smithsonian Institution Libraries (SIL) presented a seminar on "SIL Collections and Preservation: Can We Save the Nineteenth Century?"

**September 25–28**

**Performance:** Seona McDowell, an Australian folk singer, presented free concerts and student workshops at the Kennedy Center, tracing the parallel social and historical development of Australia and the United States. Educational materials from this project are being developed for classroom use.

**September 27–28**

**Meeting:** The Smithsonian Astrophysical Observatory served as host for a "Neighborhood Workshop on Supernovae as Distance Indicators" that reviewed methods of determining cosmic distances via supernovae observations.

**September 30**

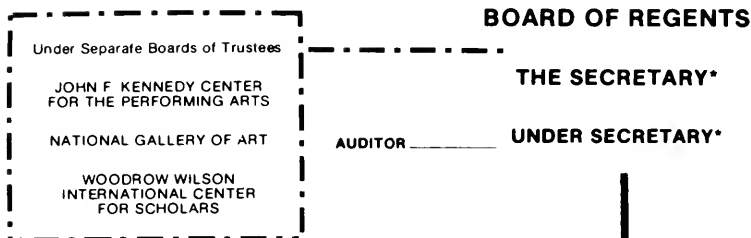
**Milestone:** The Smithsonian News Service, a monthly feature-story service of the Office of Public Affairs, completed five years. More than 800 daily papers and 750 weeklies are regular users of the service, which reaches all states with a combined circulation of 40 million.



APPENDICES

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# SMITHSONIAN INSTITUTION



## TREASURER\*

Office of Accounting and Financial Services  
Office of Grants and Risk Management  
Business Management Office  
Concessions  
Mail Order Division  
Smithsonian Museum Shops

## GENERAL COUNSEL\*

## Assistant Secretary for SCIENCE\*

National Air and Space Museum  
National Museum of Natural History/  
National Museum of Man  
National Zoological Park  
Office of Educational Research  
Office of Fellowships and Grants  
Smithsonian Astrophysical Observatory  
Smithsonian Environmental Research Center  
Smithsonian Tropical Research Institute

## Assistant Secretary for HISTORY & ART\*

Anacostia Neighborhood Museum  
Archives of American Art  
Center for Asian Art  
Freer Gallery of Art  
Sackler Gallery of Art  
Cooper-Hewitt Museum  
Hirshhorn Museum and Sculpture Garden  
Joseph Henry Papers  
National Museum of African Art  
National Museum of American Art  
Renwick Gallery  
National Museum of American History  
National Portrait Gallery  
Office of American Studies

\*Secretary's Executive Committee

**BOARDS AND COMMISSIONS**

Archives of American Art Board of Trustees	National Armed Forces Museum Advisory Board
Board of Fellowships and Grants	National Board of the Smithsonian Associates
Cooper-Hewitt Museum Advisory Council	National Museum Act Advisory Council
Folklife Advisory Council	National Museum of African Art Commission
Freer Visiting Committee	National Museum of American Art Commission
Hirshhorn Museum and Sculpture Garden Board of Trustees	National Portrait Gallery Commission
Horticultural Advisory Committee	Smithsonian Council
Joint Sponsoring Committee for the Papers of Joseph Henry	Women's Committee of the Smithsonian Associates
National Air and Space Museum Advisory Board	

**Coordinator  
of  
PUBLIC INFORMATION\***

Office of Congressional Liaison  
Office of Public Affairs  
Office of Special Events

**Director  
of  
MEMBERSHIP AND DEVELOPMENT\***

Development Office  
Smithsonian National Associate  
Program  
Smithsonian Resident Associate  
Program

**Assistant Secretary  
for  
PUBLIC SERVICE\***

The International Center  
Office of Elementary and Secondary  
Education  
Office of Folklife Programs  
Office of International Activities  
Office of Smithsonian Symposia and  
Seminars  
Office of Telecommunications  
Smithsonian Institution Press  
Smithsonian Magazine  
Visitor Information and Associates'  
Reception Center

**Assistant Secretary  
for  
MUSEUM PROGRAMS\***

Conservation Analytical Laboratory  
National Museum Act  
Office of Exhibits Central  
Office of Horticulture  
Office of Museum Programs  
Office of the Registrar  
Smithsonian Institution Archives  
Smithsonian Institution Libraries  
Smithsonian Institution Traveling  
Exhibition Service

**Assistant Secretary  
for  
ADMINISTRATION\***

Contracts Office  
International Exchange Service  
Management Analysis Office  
Office of Equal Opportunity  
Office of Facilities Services  
Office of Design and Construction  
Office of Plant Services  
Office of Protection Services  
Office of Information Resource  
Management  
Office of Personnel Administration  
Office of Printing and Photographic  
Services  
Office of Programming and Budget  
Office of Supply Services  
Travel Services Office

APPENDIX 1. *Members of the Smithsonian Council, Boards,  
and Commissions, September 30, 1984*

SMITHSONIAN INSTITUTION BOARD OF REGENTS

Warren E. Burger, *The Chief Justice of the United States, ex officio, Chancellor*  
George H. Bush, *The Vice-President of the United States, ex officio*

Edwin J. (Jake) Garn, *Senator from Utah*  
Barry Goldwater, *Senator from Arizona*  
James R. Sasser, *Senator from Tennessee*

Edward P. Boland, *Representative from Massachusetts*  
Silvio O. Conte, *Representative from Massachusetts*  
Norman Y. Mineta, *Representative from California*

David C. Acheson, *citizen of the District of Columbia*  
Anne L. Armstrong, *citizen of Texas*  
William G. Bowen, *citizen of New Jersey*  
William A. M. Burden, *citizen of New York*  
Jeannine Smith Clark, *citizen of the District of Columbia*  
Murray Gell-Mann, *citizen of California*  
A. Leon Higginbotham, Jr., *citizen of Pennsylvania*  
Carlisle H. Humelsine, *citizen of Virginia*  
Samuel C. Johnson, *citizen of Wisconsin*

SMITHSONIAN COUNCIL

Gordon N. Ray, <i>Chairman</i>	Thomas P. Hughes Ada Louise Huxtable	David F. Musto Frank Oppenheimer
Dore Ashton	Alice S. Ilchman	Jaroslav Pelikan
Milton W. Brown	Oliver O. Jensen	Vera C. Rubin
A. Hunter Dupree	Bennetta Jules-Rosette	Carl E. Schorske
Frank B. Golley	Sherman E. Lee	Gunther Schuller
Stephen Jay Gould	Thomas E. Lovejoy	Barbara W. Tuchman
Neil Harris	Peter Marler	Emily D. T. Vermuele
Christian C. Hohenlohe	Frederick W. Mote	

ARCHIVES OF AMERICAN ART BOARD OF TRUSTEES

Mrs. Otto L. Spaeth, *Chairman*  
Mr. A. Alfred Taubman, *President*  
Mrs. Nancy B. Negley, *Vice-President*  
Mrs. Robert F. Shapiro, *Vice-President*  
Mr. Irvin A. Levy, *Vice-President/Treasurer*  
Mrs. Dana M. Raymond, *Secretary*

Miss Caroline R. Alexander	Mrs. Henry C. Johnson	Mr. Alexander R. Mehran
Mrs. Eli Broad	Mrs. Dwight Kendall	Mrs. William L. Mitchell
Mrs. Francis deMarneffe	Mrs. Charles Kessler	Mrs. Muriel Kallis Newman
Mrs. George C. Dillon	Mr. Gilbert H. Kinney	Mrs. John Rosekrans
Mr. Joel S. Ehrenkranz	Mr. Howard W. Lipman	Mr. C. Bagley Wright
Mrs. Ahmet M. Ertegun	Mrs. Sam Maddux	
Mrs. Walter B. Ford II	Mr. Richard Manoojian	

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Mr. Edgar P. Richardson

HONORARY TRUSTEES

Dr. Irving F. Burton  
Mr. Harold O. Love

Mr. Russell Lynes

Mrs. William L. Richards

EX OFFICIO

S. Dillon Ripley

John E. Reinhardt

ARCHIVES OF AMERICAN ART ADVISORY COMMITTEE

NORTHERN CALIFORNIA

Donald Stover,  
*Chairman*  
Whitney Chadwick  
Wesley Chamberlin  
Herschel Chipp

Wanda Corn  
James Elliott  
Albert Elsen  
Henry Hopkins  
Harvey Jones

Margaretta Lovell  
Christina Orr-Cahall  
Peter Selz  
Ian McKibbin White

SOUTHERN CALIFORNIA

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*Chairman*  
E. Maurice Bloch  
Ruth Bowman  
Beatrice Farwell

Burton Fredericksen  
Grant Holcomb  
Richard Koshalek  
Susan C. Larsen  
Earl A. Powell III

Moira Roth  
Josine Ianco Starrels  
Maurice Tuchman  
Robert R. Wark

WASHINGTON, D.C.

Bernard Mergen,  
*Chairman*  
Marjory Balge  
Michael Botwinick  
Lorraine Brown  
David Driskell

Charles Eldredge  
Alan Fern  
Lois Fink  
Henry Glassie  
William Homer  
Charles Hummel

Al Lerner  
Marc Pachter  
Phoebe Stanton  
John Vlach  
John Wilmerding

NEW ENGLAND

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*Chairman*  
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Mr. and Mrs.  
George H. Bumgardner  
Carl Chiarenza  
Charles Ferguson  
Wolfgang M. Freitag  
Tom Froeudenheim

Hugh Gourley  
Elton W. Hall  
Johnathan P. Harding  
Patricia Hills  
Sinclair Hitchings  
John Kirk  
William Lipke  
Kenworth Moffett  
Elliott Offner

James O'Gorman  
Stephen Riley  
David Ross  
Theodore Stebbins  
Richard Teitz  
Peter Wick  
Margret Craver Withers

NEW YORK

Milton Brown,  
*Chairman*  
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John Baur  
Anne d'Harnoncourt  
John Dobkin  
William Gerdts

Lloyd Goodrich  
Eugene Gossen  
John Howat  
James Humphrey III  
John A. Kouwenhoven  
Abram Lerner  
Russell Lynes

Barbara Novak  
Clive Phillpot  
Jules D. Prown  
Joseph T. Rankin  
William B. Walker

NORTHWEST ORAL HISTORY PROJECT

Pauline Eyerly	LaMar Harrington	Harvey West
Don Foster	Marshall Hatch	Virginia Wright
Rachael Griffin	Martha Kingsbury	
Bruce Guenther	Arlene Schnitzer	

TEXAS

John Biggers	Carolyn Farb	Lupe Murchison
William Camfield	Mimi Kilgore	Bill Robinson
Linda Cathcart	Caroline Law	Joan Seeman Robinson
Dominique de Menil	Betty B. Marcus	David Warren
Louise Ferrari	Peter C. Marzio	
Eleanor Freed	Margaret McDermott	

COOPER-HEWITT MUSEUM ADVISORY COUNCIL

August Heckscher, <i>Chairman</i>	Joanne du Pont	Robert Sarnoff
Karen Johnson Boyd	Harmon Goldstone	Marietta Tree
Amanda Burden	Russell Lynes	S. Dillon Ripley, <i>ex officio</i>
Rosemary Corroon	Gilbert C. Maurer	John Reinhardt, <i>ex officio</i>
Joan K. Davidson	Kenneth Miller	
	Arthur Ross	

FOLKLIFE ADVISORY COUNCIL

Wilcomb E. Washburn, <i>Chairman</i>	William Fitzhugh	Ralph Rinzler
Roger Abrahams	Lloyd Herman	Peter Seitel
Richard Ahlborn	Robert Laughlin	Thomas Vennum, Jr.
	Scott Odell	

FREER VISITING COMMITTEE

Norman Y. Mineta, <i>Chairman</i>	Kwang-chih Chang	Hugh Scott
Laurence Sickman, <i>Vice-Chairman</i>	Marvin Eisenberg	Priscilla P. Soucek
Mrs. Jackson Burke	Katharine Graham	Richard Weatherhead
	Porter McCray	
	John M. Rosenfield	

HIRSHHORN MUSEUM AND SCULPTURE GARDEN  
BOARD OF TRUSTEES

Daniel P. Moynihan, <i>Chairman</i>	Charles Blitzer	A. James Speyer
Sydney Lewis, <i>Vice-Chairman</i>	Anne d'Harnoncourt	Leonard C. Yaseen
	Thomas M. Evans	
	Jerome Greene	

Warren E. Burger, *Chief Justice of the United States, ex officio*  
 S. Dillon Ripley, *Secretary, Smithsonian Institution, ex officio*  
 (Retired 9/17/84)  
 Robert McCormick Adams, *Secretary, Smithsonian Institution, ex officio*  
 (Appointed 9/17/84)



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APPENDIX 2. *Smithsonian Special Foreign Currency Program Awards Made October 1, 1983, through September 30, 1984*

ARCHEOLOGY AND RELATED DISCIPLINES  
(INCLUDING ANTHROPOLOGY)

**American Institute of Indian Studies**, Chicago, Illinois. Continued support for administration; research fellowships; Center for Art and Archeology; Center for Ethnomusicology; Gujarat prehistoric project II; conference on ethnomusicology; translations fellowships; Third World Hindi Conference and Urdu Conference on Mir.

**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; archeological investigations of Qasr Ibrim; archeological investigations of Wadi Tumilat.

**American University**, Washington, D.C. Vaishnava literature microfilm project (India).

**Baltimore Museum of Art**, Baltimore, Maryland. Ritual arts of the Baga (Guinea).

**Boston University**, Boston, Massachusetts. Women's education, employment, and family life (India).

**Case Western Reserve University**, Cleveland, Ohio. Tibetan modern history: 1933-50 (India).

**Duke University**, Durham, North Carolina. Land-use vegetation changes in south and southeastern Asia, 1800-1980 (India).

**Indo-U.S. Subcommission on Education and Culture**, New York, New York. Indo-American fellowship program.

**Northeastern University**, Boston, Massachusetts. Contemporary architecture in India.

**Ohio State University**, Columbus, Ohio. Islamic architecture of Kerala State (India).

**Southern Methodist University**, Dallas, Texas. Prehistory of Egypt.

**State University of New York**, Binghamton, New York. Effects of Roman Colonial system in Serbia, Yugoslavia.

**University of Arizona**, Tuscon, Arizona. Changes in the population and material culture of a north Indian village: 1953-1983; late quaternary geochronology (Egypt).

**University of California**, Berkeley, California. Excavations at Opovo-Bajbuk (Yugoslavia); shell manufacturing industry at Moenjodaro (Pakistan); archeological explorations at Balakot (Pakistan).

**University of California**, Irvine, California. The pyrotechnology and environmental impact of ancient copper oxide on smelting at Kumbhariya and Amgaji, Gujarat, India.

**University of Colorado**, Boulder, Colorado. Excavations at Ghazi Shah (Pakistan).

**University of Hawaii**, Honolulu, Hawaii. Burmese prehistory.

**University of Houston**, Houston, Texas. Restudy of the Village Khalapur in North India.

**University of Michigan**, Ann Arbor, Michigan. Research and photography of Ajanta Caves (India).

**University of Minnesota**, Minneapolis, Minnesota. Architectural plans: Noland and the Lodi-Mughal transition (India).

**University of New Mexico**, Albuquerque, New Mexico. Urban space in medieval Hindu imperial capital (India).

**University of Pennsylvania**, Philadelphia, Pennsylvania. Status, class, and dominance patterns of politico-economic change in modern India; excavation at Rojdi (India).

**University of Washington**, Seattle, Washington. Preparation of an English dictionary of the Tamil verb (India).

**University of Wisconsin**, Madison, Wisconsin. Contemporary South Asian civilization film project (India).

**Wesleyan University**, Middleton, Connecticut. Ethnographic research in Pakistan for a collaborative project on social anthropology.

## SYSTEMATIC AND ENVIRONMENTAL BIOLOGY (INCLUDING PALEOBIOLOGY)

**American Museum of Natural History**, New York, New York. Phylogenetic, behavioral, and ecological investigations on the native bees of Pakistan.

**Boston University**, Boston, Massachusetts. Analysis of growth rates of tropical trees in the Western Ghats of Karnataka State (India).

**California Academy of Sciences**, Los Angeles, California. Collection of freshwater fishes for systematic study in the Western Ghats of India.

**Carnegie Museum of Natural History**, Pittsburgh, Pennsylvania. Approach to herpetofauna of Southern India.

**Duke University**, Durham, North Carolina. Behavior of the slender loris in South India; anthropological and paleontological research into the fossil anthropoid sites of the Egyptian Oligocene.

**Florida A&M University**, Tallahassee, Florida. A taxonomic revision of the aquatic weevil genus bagous in India and Pakistan.

**Harvard University**, Cambridge, Massachusetts. Later Miocene hominoids (Pakistan).

**Howard University**, Washington, D.C. Cenozoic mammals of Pakistan.

**Idaho State University**, Pocatello, Idaho. River continuum concept in Indian streams.

**International Crane Foundation**, Chicago, Illinois. Ecology of crane reproductive behavior as it relates to the conservation of the species (India).

**Iowa State University**, Ames, Iowa. International Workshop of the Council for the Biosphere; ecology of a semitropical monsoonal wetland in India (Bharatpur).

**Massachusetts Institute of Technology**, Cambridge, Massachusetts. The deep structure and active tectonics of the Himalayas (India).

**National Museum of Natural History**, Washington, D.C. Aquatic coleoptera of Hutovo Blato (Yugoslavia); recovery of putative Neanderthal remains (Egypt); systematics of the echuira/sipuncula of India; bird population survey of the Eastern Ghats, India; pictorial guide to the birds of the Indian sub-continent; faunal assemblages and population ecology of Pakistan amphibians and reptiles.

**New York University**, New York, New York. A preliminary investigation of the snakes of Burma.

**Oakland University**, Rochester, Michigan. Research on the subtropical forests of south India.

**Ohio State University**, Columbus, Ohio. Systematics of Indian telenominae and perilampidae.

**Pennsylvania State University**, University Park, Pennsylvania. A comparative study on the old world and new world tiger beetle community structure (India).

**Smithsonian Institution**, Washington, D.C. U.S. participation in the Centenary Symposium of the Bombay Natural History Society, Bombay (India).

**Texas A&M University**, College Station, Texas. Systematics and biology of tephritidae and braconidae in India with special emphasis on fruit flies and their natural enemies.

**University of Michigan**, Ann Arbor, Michigan. A systematic study of the burrowing amphibians (Gymnophiona) of India; plumage patterns and speciation in the avian genus *phylloscopus* (India).

**University of Minnesota**, St. Paul, Minnesota. An exchange of scientific data on tigers and demonstration of a tiger monitoring system (India).

**University of North Dakota**, Grand Forks, North Dakota. Reproductive biology of the mugger crocodile (India).

**University of Vermont**, Burlington, Vermont. Genetic variability and genetic differentiation among mainland populations of the small Indian mongoose.

**University of Washington**, Seattle, Washington. International symposium on environment and hormones, Srinigar, Garhwal, India.

## ASTROPHYSICS AND EARTH SCIENCES

**George Washington University**, Washington, D.C. US-India workshop on arid zone research—Jodhpur, India.

**University of Maryland**, College Park. Second Indo-U.S. workshop on solar/terrestrial physics.

**University of Nebraska**, Lincoln, Nebraska. A reconnaissance trip of the late-cenozoic intermontane basins of North Pakistan.

**University of Southern California**, University Park, California. Evolutionary models of interstellar clouds—chemical and thermal properties (India).



**Washington University School of Medicine, St. Louis, Missouri.** Paleontology and stratigraphy of neogene deposits in Himachel Pradesh and Uttar Pradesh, India.

## MUSEUM PROGRAMS

**Indo-U.S. Subcommittee on Education and Culture, New York, New York.** Joint Indo-U.S. programs.

**Smithsonian Office of Folklife Programs, Washington, D.C.** Organization of India program for Festival of American Folklife (1985) and traveling exhibition seeing India through children's eyes.

APPENDIX 3. *National Museum Act Grants Awarded  
in Fiscal Year 1984*

GRADUATE/PROFESSIONAL EDUCATION AND TRAINING

Columbia University, New York, New York  
New York State Historical Association, Cooperstown, New York  
New York University, New York, New York  
University of Delaware, Newark, Delaware  
University of Michigan, Ann Arbor, Michigan  
University of Southern California, Los Angeles, California

MUSEUM INTERNSHIPS

Bronx Zoo, Bronx, New York  
Historic Deerfield, Deerfield, Massachusetts  
Intermuseum Conservation Association, Oberlin, Ohio  
Los Angeles County Museum of Art, Los Angeles, California  
Metropolitan Museum of Art, New York, New York  
Missouri Botanical Garden, St. Louis, Missouri  
Museums at Stony Brook, Stony Brook, New York  
New York Botanical Garden, Bronx, New York  
Panhandle-Plains Historical Museum, Canyon, Texas  
Philadelphia Museum of Art, Philadelphia, Pennsylvania  
Philadelphia Zoo, Philadelphia, Pennsylvania  
Rochester Museum and Science Center, Rochester, New York  
St. Louis Zoological Park, St. Louis, Missouri  
University of California, Los Angeles, California  
Walker Art Center, Minneapolis, Minnesota  
Yale University, New Haven, Connecticut

STIPENDS TO INDIVIDUALS FOR  
CONSERVATION STUDIES

John Barrow, United States/International Council on Monuments and Sites,  
Washington, D.C.  
Vicki Cassman, University of Delaware, Newark, Delaware

**Ann Craddock, Museum of Modern Art, New York, New York**  
**Beatriz del Cueto, United States/International Council on Monuments and Sites, Washington, D.C.**  
**Antoinette Dwan, Winterthur Museum, Winterthur, Delaware**  
**Kathleen Francis, Merrimack Valley Textile Museum, North Andover, Massachusetts**  
**Sarah Gates, Textile Conservation Centre, Surrey, England**  
**Marian Kaminitz, Bishop Museum, Honolulu, Hawaii**  
**Jane Ketcham, Textile Conservation Workshop, South Salem, New York**  
**Lucy Kinsolving, Metropolitan Museum of Art, New York, New York**  
**Andrea Pitsch, Solomon Guggenheim Museum, New York, New York**  
**Ann Schelpert, Queen's University, Ontario, Canada**  
**Eleanore Stewart, Columbia University, New York, New York**  
**Gwen Tauber, Los Angeles County Museum, Los Angeles, California**  
**Susan Jia-sun Tsang, University of Delaware, Newark, Delaware**  
**Zahira Veliz, Cleveland Museum of Art, Cleveland, Ohio**  
**Faye Wrubel, Art Institute of Chicago, Chicago, Illinois**

## SEMINARS

**African American Museums Association, Washington, D.C.**  
**Association of Science-Technology Centers, Washington, D.C.**  
**Intermuseum Conservation Association, Oberlin, Ohio**  
**National Trust for Historic Preservation, Washington, D.C.**  
**Northeast Document Conservation Center, Andover, Massachusetts**  
**Regional Conference of Historical Agencies, Manlius, New York**  
**Ringling Museum of Art, Sarasota, Florida**  
**Suquamish Tribal Cultural Center, Suquamish, Washington**  
**Washington Conservation Guild, Washington, D.C.**

## SPECIAL STUDIES AND RESEARCH

**Carnegie Museum of Natural History, Pittsburgh, Pennsylvania**  
**Metropolitan Museum of Art, New York, New York**  
**New York State Historical Association, Cooperstown, New York**  
**North Carolina State University, Raleigh, North Carolina**  
**Pennsylvania State University, University Park, Pennsylvania**  
**Philadelphia Museum of Art, Philadelphia, Pennsylvania**  
**Rochester Institute of Technology, Rochester, New York**

## SERVICES TO THE FIELD

**American Association for State and Local History, Nashville, Tennessee**

**American Association of Museums, Washington, D.C.**

**Center for Occupational Hazards, New York, New York**

**Minnesota Zoological Garden, Apple Valley, Minnesota**

**National Institute for the Conservation of Cultural Property, Washington, D.C.**

**Society for the Preservation of New England Antiquities, Boston,  
Massachusetts**

## APPENDIX 4. *Academic, Research Training, and Internship Appointments in Fiscal Year 1984*

### ACADEMIC AND RESEARCH TRAINING APPOINTMENTS

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 by bureau, office, or division—in this Appendix began their residencies between October 1, 1983, and September 30, 1984. Predoctoral and Postdoctoral fellows, graduate student fellows, Visiting Scientists, Scholars, and Students, holders of special awards and participants in special programs are so listed. The institution where each Fellow received, or expects to receive, the degree, or the home university or institution of Visiting Scientists or Scholars, and other special appointees is listed. A brief description of the project to be undertaken at the Smithsonian is included where appropriate. The fellow's or visitor's host bureau or office and the Smithsonian adviser are also listed.

#### ARCHIVES OF AMERICAN ART

**William Agee**, Senior Visiting Scholar. Past Director of the Museum of Fine Arts, Houston. *American art, 1910 to 1945 with emphasis on continuing traditions of modern American art and its relation to art internationally*, with Richard Murray, from January 1 through December 31, 1984.

#### CONSERVATION ANALYTICAL LABORATORY

**Suzanne Abel-Vidor**, Visiting Student, Brown University. *Costa Rican ceramic traditions*, with Dr. Ronald Bishop, from May 21 through July 27, 1984.

**Marilyn P. Beaudry**, Ph.D., Postdoctoral fellow in materials analysis, *Mineralogical, chemical, and technological investigation of a pigment tentatively identified as Specular Hematite and used in pre-firing decoration of Mesoamerican ceramics*, with Ronald Bishop and James Blackman, Department of Archaeometry, and William Melson, Department of Mineral Sciences, National Museum of Natural History, from September 1, 1984, to August 31, 1985.

**Maria Ligeza**, Visiting Scholar, Fulbright-Hays Research Fellowship. Academy of Fine Arts, Krakow, Poland. *Physical-chemical methods of examination of works of art*, with Jacqueline Olin, from September 1, 1984, through June 1, 1985.

**Emlen Myers**, Postdoctoral fellow in materials analysis, State University of New York at Binghamton. *Provenience analysis of Hispano-moresque pottery*, with Jacqueline Olin, from October 1, 1983, through September 30, 1984.

#### FREER GALLERY OF ART

**Timothy Clark**, Harold P. Stern Memorial Fund Fellow. Ph.D. candidate, Harvard University. *Ukiyo-e Painting in the Freer Gallery of Art*, with Dr. Yoshiaki Shimizu and Ann Yonemura, from June 18 through July 6, 1984.

**Toshi Kihara**, Fulbright Fellow, Ph.D. candidate, Osaka University. *Japanese Momoyama and Edo Period Screen and Sliding Door Paintings*, with Dr. Yoshiaki Shimizu and Ann Yonemura, June 1 through July 9, 1984.

**David Pollack**, Postdoctoral fellow, University of California, Berkeley. *Theoretical and practical aspects of relationship between paintings and their poetic inscriptions in medieval Japan*, with Dr. Yoshiaki Shimizu, from September 1, 1984, through August 31, 1985.

**Tadashi Kobayashi**, Harold P. Stern Memorial Fund Fellow, Gakushuin University, Tokyo. *Japanese Genre Paintings and Ukiyo-e Paintings*, with Dr. Yoshiaki Shimizu and Ann Yonemura, June 15 through August 11, 1984.

#### HIRSHHORN MUSEUM AND SCULPTURE GARDEN

**Susan Sterling**, Predoctoral fellow, Princeton University. *Kenneth Noland and the modern aesthetic*, with Dr. Charles Millard, Department of Painting and Sculpture, from January 17, 1984, through January 16, 1985.

#### NATIONAL AIR AND SPACE MUSEUM

**Jack M. Bruce**, the Charles A. Lindbergh Chair. *Manufacturing of British World War I aircraft in the United States*, with Walter J. Boyne and staff, from September 1, 1983, through January 31, 1984.

**Peter M. Grosz**, Alfred Verville Fellow. *The development of Austro-Hungarian aircraft during 1914-1918*, with E. T. Wooldridge, Department of Aeronautics, from September 1, 1983, through August 31, 1984.

**Adam L. Gruen**, Guggenheim Predoctoral Fellow. *United States civilian space station concepts: a case study of the nature of technological change, 1958-1983*, with Dr. Paul Hanle, Department of Space Science and Exploration, from September 1, 1984, through August 31, 1985.

**Richard K. Smith**, Alfred Verville Fellow. *The new American airplane of 1934*, with Mr. R. E. G. Davies, Department of Aeronautics, from September 17, 1984, through September 16, 1985.

**Joseph N. Tatarewicz**, Guggenheim Postdoctoral Fellow. *The role of planetary astronomers in developing the Space Telescope*, with Dr. Paul Hanle, Department of Space Science and Exploration, from December 15, 1983, through December 14, 1984.

**William L. Teng**, Smithsonian Postdoctoral Fellow. *Remote sensing for land-forms and soils in the arid southwest United States*, with Dr. Ted Maxwell, Center for Earth and Planetary Studies, from October 3, 1983, through September 30, 1984.

#### NATIONAL MUSEUM OF AFRICAN ART

**Frances Connelly**, Ph.D. candidate, University of Pittsburgh. *Influences of African art on eighteenth- and nineteenth-century Western art*, from June 9 to July 15, 1984.

**Ekpo Eyo**, Smithsonian Institution Regents Fellow. Director-General, National Commission for Museums and Monuments, Nigeria. *Work on manuscripts on archaeological excavations at Ife and Owo and an illustrated history of Nigeria from the Stone Age to the nineteenth century*, with Sylvia Williams, from June 15 through August 14, 1984.

#### NATIONAL MUSEUM OF AMERICAN ART

**Nancy Anderson**, Ph.D. candidate, University of Delaware. *Albert Bierstadt and the California Landscape Painters of the 1870s*, with Dr. William Truettner, Office of Painting and Sculpture, from October 1, 1983, through December 14, 1984.

- Sarah Boehm**, Ph.D. candidate, Bryn Mawr College. *Seth Eastman's illustrations for Henry Schoolcraft's "History and Statistical Information Respecting the History, Condition, and Prospects of the Indian Tribes of the United States,"* with Dr. Lois Fink, Office of Research and Fellowships, from September 1, 1983, through September, 1985.
- Ralph T. Coe**, Visiting Scholar, past president of the Association of Art Museum Directors and former director of the Nelson Gallery of Art, Kansas City. *The Survival of traditional Indian crafts*, with Dr. Charles C. Eldredge, Director, from November 1982, through October 1983.
- Tina Dunkley**, Smithsonian Fellow, Atlanta University. *Afro-American art and museum studies*, with Merry Foresta and Lynda Hartigan, Department of Twentieth-Century Painting and Sculpture, from May 1 through September 30, 1984.
- Betsy Fahlman**, Postdoctoral Fellow, Old Dominion University. *The art of John Ferguson Weir, 1841-1926*, with Dr. Lois Fink, Office of Research and Fellowships, from September 1, 1983, through August 1984.
- Richard Gruber**, Ph.D. candidate, University of Kansas. *Thomas Hart Benton: The Teacher and His Students*, with Dr. Charles C. Eldredge, Director, from September 1983, through December 1983.
- Lisa Koenigsberg**, Predoctoral Fellow, Yale University. *Professionalizing domesticity; American women writers on architecture, 1865-1917*, with Dr. Lillian Miller, Charles Willson Peale Papers, National Portrait Gallery, Edith Mayo, Department of Social and Cultural History, National Museum of American History, and Dr. Lois Fink, Office of Research and Fellowships, from September 1, 1984, through August 31, 1985.
- Sandra Langer**, Postdoctoral Fellow, New York University. *John Frederick Kensett, a critical study of his life and art*, with Dr. William Truettner, Department of Eighteenth and Nineteenth-Century Painting and Sculpture, from June 1 through November 30, 1984.
- Richard Masteller**, Postdoctoral Fellow, University of Minnesota. *Satiric form in the 1930s; dissident voices, dissident visions*, with Drs. Lois Fink, Office of Research and Fellowships, and Virginia Mecklenberg, Department of Twentieth-Century Painting and Sculpture, from September 10, 1984, through September 9, 1985.
- Dennis Montagna**, Ph.D. candidate, University of Delaware. *The Grant Memorial Sculpture*, with Dr. Lois Fink, Office of Research and Fellowships, from October 1, 1983, through September 14, 1984.
- Regenia Perry**, Ford Foundation Postdoctoral Fellow, Virginia Commonwealth University. *History of Black American art, 1650-1984*, with Dr. Lois Fink, Office of Research and Fellowships, from August 1, 1984, through July 31, 1985.
- Susan Rather**, Predoctoral Fellow, University of Delaware. *Paulanship and archaism in American sculpture, 1900-1930*, with Dr. Lois Fink, Office of Research and Fellowships, from January 1 through December 31, 1984.
- J. Gray Sweeney**, Postdoctoral Fellow, Indiana University. *A study of Thomas Cole's iconographic and stylistic influence over mid-nineteenth-century American painting*, with Dr. Lois Fink, Office of Research and Fellowships, from September 1, 1984, through August 31, 1985.
- Elizabeth Tebow**, Ph.D. candidate, University of Maryland. *The mythical imagination in American painting of the late-nineteenth century*, with Dr. Lois Fink, Office of Research and Fellowships, from July 1, 1983, through September 14, 1984.
- Elizabeth Turner**, Ph.D. candidate, University of Virginia. *American artists in Paris, 1920-1929*, with Dr. Lois Fink, Office of Research and Fellowships, from October 1, 1983, through December 14, 1984.

**Jerry Waters**, Visiting Student, Yale University. *Religious paintings of Henry Ossawa Tanner*, with Dr. Lois Fink, Office of Research and Fellowships, from June 4 through August 10, 1984.

**Cecile Whiting**, Predoctoral Fellow, Stanford University. *The American painters' response to Facism, 1933-1945*, with Dr. Virginia Mecklenberg, Department of Twentieth-Century Painting and Sculpture, from June 15, 1984, through June 14, 1985.

#### NATIONAL MUSEUM OF AMERICAN HISTORY

**Catherine Beeker**, Graduate Student Fellow, University of Maryland. *Men's clothing design and development of design, 1920's to 1940's*, with Claudia Kidwell, Department of Social and Cultural History, from June 11 through August 17, 1984.

**Gail Cooper**, Graduate Student Fellow, University of California, Santa Barbara. *The history of air conditioning in America, 1906-1979*, with Robert Vogel, Department of the History of Science and Technology, from July 30 through October 5, 1984.

**Michelangelo DeMaria**, Postdoctoral Fellow, University of Rome. *History of cosmic ray physics in the United States in the 1930's*, with Dr. Paul Forman, Department of the History of Science and Technology, from November 1, 1983, through October 31, 1984.

**Vicky Dula**, Graduate Student Fellow, Ohio State University. *Racism and the commercial city residential land-use structure in Cincinnati, 1802-1840*, with Dr. James Horton, Afro-American Communities Project, from June 11 through August 17, 1984.

**Deborah Dwork**, Postdoctoral Fellow, University College, London. *Urban and rural preventive maternal and child care, 1880-1945*, with Dr. Ramunas Kondratas, Department of the History of Science and Technology, from March 1, 1984, through February 28, 1985.

**Bruce Hunt**, Postdoctoral Fellow, Johns Hopkins University. *Telegraphic problems and the development of electromagnetic theory in the second half of the nineteenth century*, with Dr. Bernard Finn, Department of the History of Science and Technology, from September 1, 1984, through August 31, 1985.

**Lily Kay**, Predoctoral Fellow, Johns Hopkins University. *The technology of ideas; laboratory practices and the growth of molecular biology, 1933-1953*, with Drs. Jon Eklund and Ramunas Kondratas, Department of the History of Science and Technology, from August 15, 1984, through August 14, 1985.

**Robert Korstad**, Predoctoral Fellow, University of North Carolina. *The world of the tobacco manufacturing worker*, with Dr. Pete Daniel, Department of the History of Science and Technology, from September 1, 1984, through August 31, 1985.

**Peter Kuznick**, George Mason University/Smithsonian Institution Fellow, Rutgers University. *Science and the Common Man in 1930's America*, with Dr. Arthur Molella, Department of the History of Science and Technology, from September 1, 1984, through June 30, 1985.

**J. Bartholomew Landry**, Faculty Fellow, Columbia University. *Study of the Black middle class family in historical and societal contexts*, with Dr. Spencer Crew, Archives Center, and Dr. James Horton, Afro-American Communities Project, from June 1 through August 31, 1984.

**Gerald MacDonald**, Graduate Student Fellow, Johns Hopkins University. *Baltimore and Ohio Railroad engineering diagrams from the nineteenth century*, with Robert Vogel, Department of the History of Science and Technology, from June 4 through August 20, 1984.

**Melissa McLoud**, Predoctoral Fellow, George Washington University. *Build-*



ers in Washington, D.C., 1870–1900; changes in house design and construction, with Susan Myers and Keith Melder, Department of Social and Cultural History, from June 1, 1984, through May 31, 1985.

**David Martinez**, Graduate Student Fellow, University of Michigan. *An approach to the study of keyboard instruments, their origin and authenticity*, with John Fesperman, Department of Social and Cultural History, from May 7 through July 14, 1984.

**Portia Maultsby**, Ford Foundation Postdoctoral Fellow, University of Wisconsin. *Popular music of Black America*, with Dr. Bernice Reagon, Department of Public Programs, from August 1, 1984, through July 31, 1985.

**Marian Moore**, Predoctoral Fellow, Bowling Green State University. *Black images in advertising, analysis of the Warshaw collection, 1840–1940*, with Dr. Spencer Crew, Archives Center, from June 1, 1984, through May 31, 1985.

**David Rhees**, Predoctoral Fellow, University of Pennsylvania. *The chemists' crusade; the popularization of science in America, 1914–1940*, with Drs. Jon Eklund and Arthur Molella, Department of the History of Science and Technology, from September 1 through August 31, 1984.

**Matt Salo**, Postdoctoral Fellow, State University of New York at Binghamton. *Gypsy cultures of the United States in historical perspective*, with Richard Ahlborn, Department of Social and Cultural History, from September 1, 1984, through August 31, 1985.

**Sheila Salo**, Visiting Scholar, Western Reserve University. *Co-researcher on Gypsy cultures of the United States in historical perspective*, with Richard Ahlborn, Department of Social and Cultural History, from September 1, 1984, through August 31, 1985.

**Dorothee Schneider**, Postdoctoral Fellow, University of Munich. *New York's furniture makers and their industry, 1850–1900*, with Dr. Gary Kulik, Department of Social and Cultural History, from March 1, 1984, through February 28, 1985.

**Merritt Roe Smith**, Regents Fellow, Professor of the History of Technology at the Massachusetts Institute of Technology. *An interpretive history of the mechanization of United States industry in the antebellum period*, with Roger Kennedy, from June 1, 1984, through January 31, 1985.

**Robert Snyder**, Predoctoral Fellow, New York University. *Vaudeville and the birth of mass culture in the neighborhoods of New York City, 1890–1930*, with Carl Scheele, Department of Social and Cultural History, from June 1, 1984, through May 31, 1985.

**Valerie Steele**, First Ladies' Postdoctoral Fellow, Yale University. *Images of the Ideal Self*, with Claudia Kidwell, Department of Social and Cultural History, from January 1 through December 31, 1984.

**Sally Stein**, Predoctoral Fellow, Yale University. *The rhetoric of the colorful and the colorless in the photographic culture of the 1930's*, with Dr. Pete Daniel, Department of the History of Science and Technology, from September 1, 1984, through April 30, 1985.

**Henry Taylor**, Faculty Fellow, State University of New York at Buffalo. *Black residential patterns and the city, Cincinnati, 1802–1850*, with Dr. Spencer Crew, Archives Center, and Dr. James Horton, Afro-American Communities Project, from June 15 through October 15, 1984.

#### NATIONAL MUSEUM OF NATURAL HISTORY

**Gillian Bentley**, Predoctoral Fellow, University of Chicago. *Dental morphology, genetic traits, family, and social composition of the Bab edh-Dhra' early Bronze IA population*, with Dr. Donald Ortner, Department of Anthropology, from March 1, 1984, through February 28, 1985.

- Ava Berinstein-Swados**, Postdoctoral Fellow, University of California, Los Angeles. *Folklore of Alta Verapaz*, with Dr. Robert Laughlin, Department of Anthropology, from March 1, 1984, through February 28, 1985.
- Niel Bruce**, Postdoctoral Fellow, University of Queensland. *Taxonomic revision of the Cymothoid isopod genera Mothocya Costa, 1951 and Glossobius Schioedte and Meinert, 1883*, with Dr. Thomas Bowman, Department of Invertebrate Zoology, from November 1 through October 31, 1984.
- Silvana Campello**, Visiting Student, George Washington University. *Effects of environmental changes, biomass energy production, and other phases of applied mariculture on marine organisms*, with Dr. Walter Adey, Department of Paleobiology, Marine Systems Laboratory, from March 1, 1984, through February 28, 1985.
- Hsien Yu Cheng**, Postdoctoral Fellow, Tulane University. *Systematics and evolution of Sphaerodactylus Wagler in Hispaniola*, with Dr. George Zug, Department of Vertebrate Zoology, from June 1, 1984, through May 31, 1985.
- Elizabeth Chornesky**, Postdoctoral Fellow, University of Texas. *The application of biological characters to the taxonomy of reef corals*, with Dr. Klaus Ruetzler, Department of Invertebrate Zoology, from September 15, 1984, through September 14, 1985.
- Charles Cobb**, Graduate Student Fellow, Southern Illinois University. *Analysis of the Hale site mortuary collections*, with Dr. Bruce Smith, Department of Anthropology, from June 4 through August 10, 1984.
- G. Kent Colbath**, Postdoctoral Fellow, University of Oregon. *Durability and functional morphology of polychaete jaws, the fossil record*, with Dr. Kristian Fauchald, Department of Invertebrate Zoology, from October 1, 1983, through September 30, 1984.
- Paul Delaney**, Graduate Student Fellow, University of Southern California. *A study of the phylogeny, evolution, and biogeography of the marine isopod family Corallanidae Hansen, 1890*, with Dr. Thomas Bowman, Department of Invertebrate Zoology, from June 25 through August 31, 1984.
- Andrzej Elzanowski**, Postdoctoral Fellow, University of Warsaw. *Jaw apparatus of terrestrial omnivorous birds*, with Dr. Richard Zusi, Department of Vertebrate Zoology, from October 1, 1983, through September 30, 1984.
- Joseph Ewan**, Regents Fellow, Emeritus Professor of Botany, Tulane University. *A biographical bibliography of trail narratives of naturalists in South America*, with Drs. Richard Fiske and Mark Littler, Department of Botany, from April 1, 1984, through March 31, 1985.
- Brian Farrell**, Visiting Student, University of Maryland. *Distribution of Peruvian beetle among tree species and seasons*, with Dr. Terry Erwin, Department of Entomology, from July 23 through September 14, 1984.
- J. Whitfield Gibbons**, Visiting Scientist, Savannah River Ecology Laboratory. *Review and summary of literature on turtle ecology*, with Dr. George Zug, Department of Vertebrate Zoology, from September 1, 1984, through May 31, 1985.
- Gary Graves**, Postdoctoral Fellow, Florida State University. *Zoogeography and speciation of northern Andean birds*, with Dr. Richard Zusi, Department of Vertebrate Zoology, from September 1, 1984, through August 31, 1985.
- Elizabeth Greene**, James E. Webb Fellow, Department of Mineral Sciences. Candidate for Master of Arts in Museum Studies, George Washington University, 1984-1985.
- James Griffin**, Regents Fellow, Senior Research Scientist, Department of Anthropology, University of Michigan. *Hopewell burial mound cultures of the upper midwestern United States*, with Dr. Richard Fiske, Director, from January 1 through December 15, 1984.

**John Hackney**, Visiting Scientist, Georgetown University. *Factors controlling the productivity of algal turf communities*, with Dr. Walter Adey, Department of Paleobiology, Marine Systems Laboratory, from March 1 through October 31, 1984.

**Sidney Halsor**, Predoctoral Fellow, Michigan Technological University. *Mineral chemistry of modern Guatemalan andesites, insight into combined fractionation, assimilation, and mixing*, with Drs. William Melson and Thomas Simkin, Department of Mineral Sciences, from September 1, 1984, through February 28, 1985.

**Ana Harada**, Visiting Student, University of Maryland. *Tropical rain forest ant ecology*, with Dr. Terry Erwin, Department of Entomology, from July 23 through September 14, 1984.

**Mark Hershkovitz**, Graduate Student Fellow, University of California, Davis. *A survey of Caryophyllid leaves*, with Dr. Joan Nowicke, Department of Botany, from June 9 through September 14, 1984.

**John Heyning**, Graduate Student Fellow, University of California, Los Angeles. *Cranial variation in the beaked whale *Ziphius cavirostris**, with Dr. James Mead, Department of Vertebrate Zoology, from July 2 through September 7, 1984.

**Peter Houde**, Predoctoral Fellow, University of Michigan. *Phylogenetics of early Tertiary paleognathous birds*, with Dr. Storrs Olson, Department of Vertebrate Zoology, from June 1, 1984, through May 31, 1985.

**H. Edwin Jackson**, Predoctoral Fellow, University of Michigan. *The prehistoric subsistence culture of the Poverty Point Culture in the lower Mississippi valley*, with Dr. Bruce Smith, Department of Anthropology, from September 1, 1984, through August 31, 1985.

**Jonathan Kelafant**, Graduate Student Fellow, George Washington University. *Determination of the paleosalinity of the Burgess Shale Formation*, with Dr. Kenneth Towe, Department of Paleobiology, from June 4 through August 10, 1984.

**Clara Kidwell**, Faculty Fellow, University of California, Berkeley. *A history of the Choctaw tribe in Mississippi*, with Drs. William Sturtevant, Department of Anthropology, and Wilcomb Washburn, Office of American Studies, from January 1 through February 28, 1984.

**Kishor Kumar**, Postdoctoral Fellow, Punjab University. *Marine and terrestrial Eocene mammalian assemblages from India with reference to dental ultrastructure*, with Dr. Clayton Ray, Department of Paleobiology, from October 1, 1983, through September 30, 1984.

**Steven Leipertz**, Graduate Student Fellow, University of Washington. *A phyletic study of the Pleuronectinae*, with Dr. Richard Vari, Department of Vertebrate Zoology, from September 17 through November 23, 1984.

**Rafael Lemaitre**, Graduate Student Fellow, University of Miami. *The systematics of the genus *Parapagurus* with a revision of the Western Atlantic species*, with Dr. Raymond Manning, Department of Invertebrate Zoology, from June 11 through August 17, 1984.

**Nancy Levoy**, Graduate Student Fellow, Massachusetts Institute of Technology. *Metallurgy in ancient Ecuador and its role in New World metallurgical developments*, with Dr. Betty Meggers, Department of Anthropology, from September 17 through November 23, 1984.

**Danielle Lucid**, Visiting Student, University of Maryland. *The role of nutrients and the corresponding effect it has on algal productivity and community structure*, with Dr. Walter Adey, Department of Paleobiology, Marine Systems Laboratory, from February 15, 1984, through February 14, 1985.

**John Malinky**, Postdoctoral Fellow, University of Iowa. *Taxonomic and biostratigraphic reassessment of *hyolitha* (Mollusca) from the Lower Paleozoic*,

with Dr. Richard Grant, Department of Paleobiology, from July 1, 1984, through June 30, 1985.

**Philip Millener**, Postdoctoral Fellow, Auckland University. *A study of Lower Tertiary penguins*, with Dr. Storrs Olson, Department of Vertebrate Zoology, from March 15, 1984, through March 14, 1985.

**Scott Miller**, Graduate Student Fellow, Harvard University. *Generic revision of the Neotropical moth family Dalceridae*, with Donald Davis, Department of Entomology, from August 6 through October 12, 1984.

**Rand Miyashiro**, Graduate Student Fellow, University of California, Berkeley. *Comparative morphometrics of hominoids and Old World monkeys*, with Dr. Ortner, Department of Anthropology, from June 4 through August 10, 1984.

**Patricia Moguel**, Predoctoral Fellow, University of Mexico. *Ethnohistory and ecology of the Totonacapon region, Vera Cruz, Mexico*, with Dr. Betty Meggers, Department of Anthropology, from May 1, 1984, through February 28, 1985.

**Jill Neitzel**, Postdoctoral Fellow, Arizona State University. *A stylistic analysis of Smithsonian collections of black-on-white pottery from Chaco Canyon*, with Dr. Dennis Stanford, Department of Anthropology, from August 1, 1984, through July 31, 1985.

**Stephen Nichols**, Predoctoral Fellow, Cornell University. *Systematics, cladogeny, and zoogeography of Ardistomis and Semiardistomis*, with Dr. Terry Erwin, Department of Entomology, from January 1 through July 31, 1984.

**Michael Pogue**, Predoctoral Fellow, University of Minnesota. *A generic revision of the Cochyliidae (Lepidoptera) of North America*, with Dr. Donald Davis, Department of Entomology, from June 1, 1984, through May 31, 1985.

**Harry Savage**, Postdoctoral Fellow, Florida State University. *Systematic studies on the Oswaldoi subgroup of Anopholes with emphasis on the reliable identification of malarial vectors*, with Dr. Bruce Harrison, Department of Entomology, from August 1, 1984, through July 31, 1985.

**Enrico Savazzi**, Postdoctoral Fellow, Uppsala University, Sweden. *Functional morphology and evolution of sculptural patterns in invertebrates*, with Dr. Thomas Waller, Department of Paleobiology, from June 1, 1984, through May 31, 1985.

**Miriam Smyth**, Postdoctoral Fellow, University of Maryland. *Interactions between boring organisms, snail shells, and coralline algae*, with Dr. Klaus Ruetzler, Department of Invertebrate Zoology, from December 1, 1983, through November 30, 1984.

**Elizabeth Strasser**, Predoctoral Fellow, City University of New York. *Multiple pathways to terrestriality, a cercopithecoid model for human evolution*, with Dr. Richard Thorington, Department of Vertebrate Zoology, from September 1, 1984, through August 31, 1985.

**Christopher Tanner**, Postdoctoral Fellow, University of British Columbia. *Morphological variation on selected tropical brown algae, phenotypic plasticity or genetic differentiation*, with Dr. James Norris, Department of Botany, from August 1, 1984, through July 31, 1985.

**Lawrence Todd**, Postdoctoral Fellow, University of New Mexico. *Taphonomic analysis of Paleoindian bison kill sites*, with Dr. Dennis Sanford, Department of Anthropology, from January 1 through December 31, 1984.

**Elizabeth Tudor**, Graduate Student Fellow, Rice University. *Coccidiomycosis in a southwestern Indian population*, with Dr. Donald Ortner, Department of Anthropology, from September 10 through November 16, 1984.

**Robert Voss**, Postdoctoral Fellow, University of Michigan. *Geographic patterns morphological variation in Zygodontomys*, with Dr. Michael Carleton, Department of Vertebrate Zoology, from November 15, 1983, through November 14, 1984.

### Visiting Scholars

**Giacchino Bonaduce**, Walter Rathbone Bacon Scholar, Naples Zoological Station. *Pliocene fauna of the Outer Iberian Portal*, with Dr. Richard Benson, Department of Paleobiology, 1984–1985.

**Joan Ferraris**, Walter Rathbone Bacon Scholar, Mount Desert Island Biological Laboratory. *Physiological properties affecting mangrove soft bottom community structure*, with Drs. Kristian Fauchald and Brian Kensley, Department of Invertebrate Zoology, 1984–1985.

**David Young**, Walter Rathbone Bacon Scholar, United States Navy Biological and Chemical Oceanography Branch. *Benthic invertebrates/sediment relationship on lagoon bottoms near Carrie Bow Bay, Belize*, with Dr. Klaus Ruetzler, Department of Invertebrate Zoology, 1984–1985.

### NATIONAL PORTRAIT GALLERY

**Maria Iacullo**, Graduate Student Fellow, Columbia University. *Public demand and the rise of an art-historical establishment*, with Dr. Lillian Miller, Charles Willson Peale Papers, from June 4 through August 10, 1984.

**Susan Moeller**, Graduate Student Fellow, Harvard University. *Photography as public image*, with Dr. Alan Fern, Director, and William Stapp, Curatorial Department, from June 4 through August 10, 1984.

**Jeffrey Stewart**, Postdoctoral Fellow, Yale University. *A biography of Alain Locke*, with Marc Pachter, Department of History, and Dr. Virginia Mecklenberg, Department of Twentieth-Century Painting and Sculpture, National Museum of American Art, from September 1, 1984, through August 31, 1985.

**Tara Tappert**, Predoctoral Fellow, George Washington University. *Social and cultural biography of Cecilia Beaux, 1855-1942, Philadelphia-born artist*, with Dr. Lillian Miller, Charles Willson Peale Papers, from June 15, 1984, through June 14, 1985.

**Deobrah Van Buren**, Predoctoral Fellow, George Washington University. *The Cornish Colony, 1885-1905, a summer artists' colony*, with Dr. Lillian Miller, Charles Willson Peale Papers, from September 1, 1984, through August 31, 1985.

**Kenneth Yellis**, James E. Webb Fellow, Department of Education. Candidate for Master of Public Administration, George Washington University, 1984–1985.

### NATIONAL ZOOLOGICAL PARK

**Cathy Blohowiak**, Postdoctoral Fellow, Virginia Polytechnic Institute and State University. *Mate choice and inbreeding of black ducks*, with Drs. Eugene Morton and Katherine Ralls, Department of Zoological Research, from August 1, 1984, through July 31, 1985.

**Eric Dinerstein**, Visiting Scientist, University of Washington. *Effects of fire and herbivory on forest community structure in Chitawan National Park, Nepal*, with Dr. Christen Wemmer, Conservation and Research Center, from May 1, 1984, through April 30, 1985.

**Eyal Shy**, Postdoctoral Fellow, Wayne State University. *The function of song in birds; testing the ranging hypothesis*, with Dr. Eugene Morton, Department of Zoological Research, from March 1, 1984, through February 28, 1985.

**Nancy Solomon**, Graduate Student Fellow, University of Illinois. *Mother/young relationships in marsupials*, with Dr. Devra Kleiman, Department of Zoological Research, from June 4 through August 10, 1984.

**Steven Thompson**, Postdoctoral Fellow, University of California, Irvine. *Energetics of reproduction in eutherian and marsupial mammals*, with Dr. Devra

Kleiman, Department of Zoological Research, from August 1, 1984, through July 31, 1985.

#### *Visiting Scholar*

**Wolfgang Dittus**, Walter Rathbone Bacon Scholar, University of Maryland. *Social behavior and population dynamics of the Toque monkey in Sri Lanka*, with Dr. Devra Kleiman, Department of Zoological Research, 1984-1985.

#### OFFICE OF FOLKLIFE PROGRAMS

**Michael Licht**, Ph.D. candidate, University of Texas, Austin. *The role of the harmonica in traditional American music*, with Dr. Thomas Vennum, Jr., from June 1982, through June 1984.

**Nicolas Schidlovsky**, Ph. D., Princeton University. *Music of the Old Believers; oral traditions of ancient Russia in the U.S. today*, with Dr. Thomas Vennum, Jr., from March 1, 1983, through February 28, 1984.

#### SMITHSONIAN ASTROPHYSICAL OBSERVATORY

**I. J. Danziger**, Visiting Scientist, European Southern Observatory. *Optical identification of Einstein Survey Sources, interpretation of supernova remnant spectra, and interpretation of emission lines from neutral atoms from planetary nebulae and Herbig-Haro objects*, with Drs. Paul Gorenstein, Fred Seward, and Alex Dalgarno, from May 21 through June 21, 1984, and September 1 through September 30, 1984.

**Margaret Graff**, Postdoctoral Fellow, University of Oregon. *Photodissociation of CH and OH application to molecular formation and destruction in the interstellar medium*, with Dr. Irwin Shapiro, Director, and staff, from September 1, 1984, through August 31, 1985.

**John Hughes**, Postdoctoral Fellow, Columbia University. *Experimental and theoretical studies of high-energy astrophysics*, with Dr. Irwin Shapiro, Director, and staff, from September 1, 1984, through August 31, 1986.

**Scott Kenyon**, Postdoctoral Fellow, University of Illinois. *Study of symbolics and simple M stars in the IR and optical*, with Dr. Irwin Shapiro, Director, and staff, from September 1, 1984, through August 31, 1985.

**David Lumb**, Visiting Scientist, University of Leicester. *A collaborative research*, with Dr. Irwin Shapiro, Director, and staff, from April 15, 1984, through February 14, 1985.

**Piotr Majer**, Visiting Scientist, Astronomical Observatory, Wroclaw University. *Analysis of Einstein data especially in the area of x-ray emission from stars and solar chromospheres*, with Drs. L. Golub and Robert Rosner, from August 1 through September 30, 1984.

**Robert Mathieu**, Postdoctoral Fellow, University of California, Berkeley. *The stellar kinematics of star-forming regions*, with Dr. David Latham from October 1, 1983, through September 30, 1985.

**Jose Torrelles**, Visiting Scientist, Universidad Nacional Autonoma de Mexico. *Observations of ammonia toward regions of star formation using the VLA and Haystack radio telescopes*, with Dr. James Moran, from March 19 through October 15, 1984.

**Jean Turner**, Postdoctoral Fellow, University of California, Berkeley. *Observation of normal galactic nuclei, the nuclear environment, and its relation to nuclear sources*, with Dr. Irwin Shapiro, Director, and staff, from September 1, 1984, through August 31, 1985.

**Wei Shen**, Visiting Scientist, Shaanxi Astrophysical Observatory. *Fundamental aspects of the cold maser*, with Dr. Irwin Shapiro, Director, and staff, from December 12, 1983, through December 11, 1984.

#### SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER

**Silvia Frosch**, Postdoctoral Fellow, University of Freiburg, Germany. *Leaf gradients and circadian rhythms in photosynthetic capacity in relation to photoperiodic induction in long-day plants*, with Dr. Gerald Deitzer, from September 1, 1984, through August 31, 1985.

**Bin Goo Kang**, Postdoctoral Fellow, University of Michigan. *Hormonal control of senescence in Lemna*, with Dr. Charles Cleland, from September 1, 1984, through August 31, 1985.

**Michael Krones**, Visiting Student, University of Maryland. *Automatic control systems testing the effects of dynamic changes in light quality on plant growth*, with Dr. John Sager, from August 1, 1984, through July 31, 1985.

**Romuald Lipcius**, Postdoctoral Fellow, Florida State University. *Blue crab regulation of benthic community structure in the Chesapeake Bay*, with Dr. Anson Hines, from August 15, 1984, through August 14, 1985.

**Henry McKellar**, Visiting Scientist, University of Florida. *Comparative ecosystems analysis of the North Inlet, South Carolina, and the Rhode River coastal wetlands*, with Dr. David Correll, from August 15, 1984, through August 14, 1985.

**Timothy Spira**, Visiting Scholar, University of California, Berkeley. *The ecological significance of cleistogamy in *Lamium amplexicaule**, with Dr. Dennis Whigham, from May 29 through September 15, 1984.

**Lisa Wagner**, Postdoctoral Fellow, University of California, Berkeley. *The reproductive success of *Poa annua*, *Poa pratensis*, and *Poa bulbosa* in disturbed habitats*, with Dr. Dennis Whigham, from March 1, 1984, through February 28, 1985.

#### SMITHSONIAN OFFICE OF EDUCATIONAL RESEARCH

**Doris McNeely Johnson**, Faculty Fellow, University of the District of Columbia. *Attitudes and awareness of parents on the role of toys and play in the development of children*, with Dr. John Balling from September 1 through December 31, 1984.

**Mara Miller**, Graduate Student Fellow, Yale University. *The relationship between applied environmental psychology and garden design*, with Drs. John Balling and John Falk, from June 4 through August 17, 1984.

#### SMITHSONIAN OFFICE OF FACILITIES SERVICES

**Catherine Ross**, James W. Webb Fellow, University of Pennsylvania. *Cost benefit analysis of renting versus building office space*, with Thomas L. Peyton, from July 2 through August 31, 1984.

#### SMITHSONIAN OFFICE OF FOLKLIFE PROGRAMS

**Elizabeth Beuck Derbyshire**, James E. Webb Fellow. Candidate for Master of Public Administration, George Washington University, 1984-1985.

#### SMITHSONIAN TROPICAL RESEARCH INSTITUTE

**Eldridge Adams III**, Predoctoral Fellow, University of California, Berkeley. *Regulation of foraging territories of aboreal ants*, with Dr. David Roubik, from October 1, 1983, through September 30, 1984.

**Hugh Caffey**, Postdoctoral Fellow, University of Sydney, Australia. *Regional patterns of settlement and early survival of intertidal barnacles*, with Dr. Ross Robertson, from August 1, 1984, through July 31, 1985.

**Greg deNevers**, Visiting Student, University of Missouri. *A phenological assessment of the forest and chemical analysis of flavonoids in the plant*

family Melastomataceae, with Dr. Robert Dressler, from August 1, 1984, through June 14, 1985.

**Ola M. Fincke**, Ph.D., University of Iowa. *Sexual Selection in a Neotropical Pseudostigmatid Damselfly: A Test of the Relative Importance of Genetic Versus Environmental Influences on a Male Fitness Trait*, with Dr. Hindrik Wolda, from October 1, 1983, through September 30, 1984.

**Rachel Levin**, Predoctoral Fellow, Cornell University. *The adaptive significance of antiphonal song in Thyrothorus nigricapillus*, with Dr. Neal Smith, from January 1 through December 31, 1984.

**Dianna Padilla**, Predoctoral Fellow, University of Alberta, Canada. *Structural defenses of marine algae*, with Dr. John Cubit, from September 1, 1984, through January 15, 1985, and from May 1 through July 31, 1985.

**Robert Richmond**, Postdoctoral Fellow, State University of New York at Stony Brook. *The population biology of Pocillopora damicornis in the eastern Pacific*, with Drs. Harilaos Lessios and Ross Robertson, from February 1, 1984, through January 31, 1985.

**Eugene Schupp**, Predoctoral Fellow, University of Iowa. *Consequences of variable reproduction in Faramaea occidentalis* with Dr. Egbert Leigh, from June 1, 1984, through May 31, 1985.

**James Weinberg**, Postdoctoral Fellow, University of Connecticut. *An investigation of speciation in Panamanian populations of a marine isopod*, with Dr. Harilaos Lessios, from June 1, 1984, through May 31, 1985.

**Marina Wong**, Postdoctoral Fellow, University of Michigan. *Plant phenology foliage/arthropod abundance and the trophic organization of birds in Panamanian forest understory*, with Dr. Joseph Wright, from June 1, 1984, through May 31, 1985.

## INTERNSHIP AND OTHER STUDENT APPOINTMENTS

The Smithsonian offers internship appointments to visiting graduate and undergraduate students. The persons—listed by bureau, office, or division—in this Appendix began their appointments between October 1, 1983, and September 30, 1984. Holders of special awards and participants in special programs are so listed. The institutions attended, the title or a brief description of the project undertaken, where appropriate, and the name of the Smithsonian supervisor are given for each intern.

### ANACOSTIA NEIGHBORHOOD MUSEUM

**Joseph Rodriguez**, Ph.D. candidate, University of California, Berkeley. *Work and study in the assigned department*, with Zora Felton, Education Department, from June 4 through August 24, 1984.

### ARCHIVES OF AMERICAN ART—NEW ENGLAND AREA CENTER

**Dana Comi**, B.A. candidate, Boston University. *Processing, cataloging, and arranging for preservation collections of manuscript material related to American visual arts*, with Robert Brown from September 18 through December 18, 1984.

### CONSERVATION ANALYTICAL LABORATORY

**Deborah Delauney**, M.A., Yale University, M.A., Johns Hopkins University. *On-site measurement of moisture movement in walls at Renwick Gallery by electronically logging temperature and water vapor pressure*, with Timothy Padfield, from July 30, 1984, through January 31, 1985.



**John Frieman**, M.A. candidate, New York University. *Measurement of moisture and salt movement in the fabric of historic buildings*, with Timothy Padfield, from January 30 through November 30, 1984.

**Camille Juliana**, M.A. candidate, George Washington University. *Pottery analysis including neutron activation analysis and multivariate statistical analysis*, with Dr. James Blackman, from August 1 through December 31, 1984.

#### COOPER-HEWITT MUSEUM

**Laura Agoston**, Sidney and Celia Siegel Fellow, B.A. candidate, Yale College. *Work and study in the Library department*, with Katherine Martinez, from June 11 through August 17, 1984.

**John Bacon**, B.A. candidate, Yale University. *Work and study in the Decorative Arts Department*, with David McFadden, from June 11 through August 17, 1984.

**Louise Bell**, B.A., University of Minnesota. *Work and study in the Decorative Arts Department*, with David McFadden, from June 11 through August 17, 1984.

**Rebecca Billings**, Textile Conservation Intern, Diploma in Art History, University of British Columbia. *Work and study in the Textiles Department*, with Lucy Commoner, from February 15 through September 30, 1984.

**Somi Kim**, Sidney and Celia Siegel Fellow, B.A., Harvard College. *Work and study in the Wall Coverings Department*, with Ann Dorfsman, from June 11 through August 17, 1984.

**Abigail Kreuger**, B.A. candidate, Barnard College. *Work and study in the Decorative Arts Department*, with David McFadden, from June 11 through August 17, 1984.

**Julie Stein**, B.A., University of Virginia. *Work and study in Public Information*, with Isabelle Silverman, and *Work and study in Special Events*, with Eileen White, from June 11 through August 17, 1984.

**Robin Tomlinson**, B.A. candidate, Princeton University. *Work and study in the Library Department*, with Kathy Martinez, from June 11 through August 17, 1984.

**Maria Vicens**, Sidney and Celia Siegel Fellow, B.A., Bryn Mawr College. *Work and study in the Decorative Arts Department*, with David McFadden, from June 11 through August 17, 1984.

**Jennifer Watson**, B.A. candidate, Salem College. *Work and study in the Development Office*, with Eileen White, from June 11 through August 17, 1984.

**Robert Wojtowicz**, Sidney and Celia Siegel Fellow, M.A. candidate, Columbia University. *Work and study in the Drawings and Prints Department*, with Elaine Dee, from June 11 through August 17, 1984.

**Alexandra Sapirstein**, The Hotchkiss School. *Work and study in the Library Department*, with Kathy Martinez, from July 2 through August 10, 1984.

**Hanna Loesser**, B.A. candidate, Marymount Manhattan College. *Work and study with the programs coordinator*, Susan Yelavich, from July 9 through August 31, 1984.

#### HIRSHHORN MUSEUM AND SCULPTURE GARDEN

**Jacques Benovil**, Sophomore, Ellington School of the Arts. *Work and study in the Photography Laboratory*, with Morris Stalsworth, from July 2 through August 31, 1984.

**Andrew Connors**, B.A. candidate, Yale University. *Work and study in the Exhibits and Design Department*, with Joseph Shannon, from June 11 through August 17, 1984.

**Ann Gaylin**, B.A., Brandeis University. *Work and study in the Painting and Sculpture Department*, with Valerie Fletcher, from June 11 through August 17, 1984.

**Nancy Purinton**, M.S. candidate, University of Delaware. *Work and study in the Conservation Laboratory*, with Antoinette Owen, from June 4 through August 10, 1984.

**Karen Siatris**, B.A. candidate, Middlebury College. *Work and study in the Education Department*, with Edward Lawson, from June 11 through August 17, 1984.

**Julie Vanek**, B.A. candidate, Smith College. *Work and study in the Painting and Sculpture Department*, with Dr. Judith Zilczer, from June 11 through August 17, 1984.

#### *Other Interns*

**Diane Eliasoph**, M.A.T. Program, George Washington University. *Research and study in the Department of Education*, with Teresia Bush, from January 16 through May 4, 1984.

**Nancy Purinton**, B.F.A., Tufts University; M.A. candidate, University of Texas at Austin; M.S. candidate, Winterthur/University of Delaware. *Research and study in the Department of Conservation*, with Antoinette Owen, from June 4 through August 10, 1984.

**Susan B. Wein**, B.A. candidate, University of Michigan. *Research and study in the Department of Exhibits and Design*, with Joseph Shannon, from May 24 through July 13, 1984.

#### JOSEPH HENRY PAPERS

**Helen LaFave**, Smith College/Smithsonian Institution American Studies Intern, B.A. candidate, Smith College. *American perceptions of European science, 1820 to 1860*, with Dr. Paul Theerman, from September 4 through December 31, 1984.

#### NATIONAL AIR AND SPACE MUSEUM

**Christopher Beiting**, B.A. candidate, Kalamazoo College, with Dr. Allan Needell, Department of Space Science and Exploration, from March 26 through June 7, 1984.

**Robert Cullen**, High Point Senior High School, with Mr. Dana Bell, Records Management Division, from July 17 through August 31, 1984.

**Kurt Descheemaeker**, Wakefield High School, with Mr. Dana Bell, Records Management Division, from June 25 through August 31, 1984.

**Susan Gould**, B.A. candidate, Harvard University, Radcliffe College, with Dr. David DeVorkin, Department of Space Science and Exploration, from June 6 through July 17, 1984.

**David Hallam**, Australian War Memorial, with Walter Roderick, Preservation and Restoration Operations, Paul E. Garber Facility, from June 28 through December 24, 1984.

**Helen Harvey**, B.A. candidate, Stanford University, with Mr. Dale Hrabak, Photography Office, from March 22 through May 18, 1984.

**Kathleen Hogan**, B.S. candidate, Trinity College, with Dr. David DeVorkin, Department of Space Science and Exploration, from January 26 through May 31, 1984.

**Donald Hooper Jr.**, B.S. candidate, University of Missouri at Rolla, with Dr. Ted Maxwell, Center for Earth and Planetary Studies, from June 5 through July 27, 1984.

**Michael Krall**, La Plata High School, with Mr. Dana Bell, Records Management Division, from February 7 through May 15, 1984.

**Michael Lee**, St. Albans School, with Mr. Dana Bell, Records Management Division, from June 18 through August 27, 1984.

**Jon Marsh**, Thomas S. Wootton High School, with Mr. Dana Bell, Records Management Division, from June 31 through August 31, 1984.

**Neal Parker**, B.A. candidate, University of Virginia, with Dr. Kerry Joels, Office of Research Support, from June 5 through July 27, 1984.

**Deborah Perry**, Ph.D. candidate, Indiana University, with Lou Lomax, Exhibits and Presentations Division, from June 4 through August 15, 1984.

**Karen Jan Radel**, B.A. candidate, Stanford University, with Mr. Dale Hrabak, Photography Office, from April 1 through June 15, 1984.

**George Rees**, B.S. candidate, Purdue University, with Walter Roderick, Preservation and Restoration Operations, Paul E. Garber Facility, from June 4 through July 27, 1984.

**Mary Alexander Sarros**, Washington and Lee High School, with Mary Valdivia, Exhibits and Presentations Division, from January 24 through May 18, 1983.

**William Shackelford**, B.A. Middlebury College. *Work and research on the Aviation History Project*, with Dr. Von Hardesty, Department of Aeronautics, from September 10 through December 21, 1984.

**Frances Silcox**, M.A. candidate, George Washington University, with Mary Valdivia, Exhibits and Presentations Division, from December 7, 1983, through March 31, 1984.

**Peter Trippi**, B.A. candidate, College of William and Mary. *Work on a public relations project including compiling a weekly digest*, with Holly Haynes, Office of Public Affairs, from September 10 through December 14, 1984.

#### NATIONAL MUSEUM OF AFRICAN ART

**Eve Furguson**, Cooperative Education Program Student, M.A. candidate, Howard University. *Work on public dissemination of information regarding all activities of the Museum*, with Margaret Bertin, from October 7, 1983, through July 27, 1984.

#### NATIONAL MUSEUM OF AMERICAN ART

**Shelby Baker**, Pennsylvania State University. Special project in the Office of Museum Programs, from September 12 through December 6, 1983.

**Gwen Hill**, Stanford University. Special project in the Office of Museum Programs, from February 8 through April 27, 1984.

**Amy Gearin**, The American University. Special project at the Renwick Gallery, from September 12, 1982, through April 27, 1984.

**Michael Grauer**, The University of Kansas. Special project in the Department of Design and Production, from February 1 through May 15, 1984.

**Keith Nemlich**, Cornell University. Special project in the Archives of American Art and the Department of Graphic Arts, from September 12 through December 6, 1983.

**Michele Oakley**, The American University. Special project in the Office of the Director, from September 12, 1983, through April 27, 1984.

**Louise Thorlin**, The University of Virginia. Special project in the Department of Painting and Sculpture, from September 12, 1983, through April 27, 1984.

**Ruthann Uithol**, The American University. Special project in the Office of the Registrar, from September 12, 1983, through April 27, 1984.

### *Other Interns*

- Jessica Dobrin**, Philadelphia College of Art. Special project done in conjunction with the Department of Design and Production.
- Patty Murphy**, Philadelphia College of Art. Special project done in conjunction with the Department of Design and Production.

### *Summer Interns*

- Thomas Donovan**, Golden Gate University. *Work and study in the Office of Museum Programs*, from June 1 through August 3, 1984.
- Alan Hanson**, University of Maryland. *Work and study in the Office of the Chief Curator*, from June 1 through August 3, 1984.
- Carol Hughes**, University of Virginia. *Work and study in the Office of Research Support*, from June 1 through August 3, 1984.
- Pamela Kurtz**, Middlebury College. *Work and study in the Department of Painting and Sculpture*, from June 1 through August 3, 1984.
- Reid Miles**, Claremont McKenna College. *Work and study in the Department of Design and Production*, from June 1 through August 3, 1984.
- Jenni Schlossman**, University of Delaware. *Work and study in the Department of Painting and Sculpture*, from June 1 through August 3, 1984.

### *High School Summer Interns*

- Lance Christian**, John Marshall High School, Oklahoma City, Oklahoma. *Work and study in the Office of the Registrar*, from June 10 through July 13, 1984.
- Ani Esther Rubin**, Oldfields School, Baltimore, Maryland. *Work and study in the Department of Design and Production*, from May 5 through May 25, 1984.
- Elizabeth Boyte Wilson**, Oldfields School, Baltimore, Maryland. *Work and study in the Department of Design and Production*, from May 5 through May 25, 1984.

### NATIONAL MUSEUM OF AMERICAN HISTORY

- Daphne Barbour**, M.A. candidate, New York University. *Examination and treatment of paper projects including solvent tests, fiber analysis, and photographic documentation*, with Scott Odell, Division of Conservation, from August 1 through August 31, 1984.
- Melanie Blanding**, B.S. candidate, Fisk University. *Political history project*, with Edith Mayo, Department of Social and Cultural History, from June 4 through August 24, 1984.
- Kathleen Campisano**, M.A. candidate, University of South Carolina. *Architectural and physical history of the Patent Office Building*, with Douglas Evelyn, from May 16 through August 12, 1984.
- Susan Collins**, Smith College/Smithsonian Institution American Studies Intern, B.A. candidate, Smith College. *Work on the "Field to Factory" project*, with Dr. Spencer Crew, Archives Center, from September 1 through December 31, 1984.
- Fuabeh Fonge**, Ph.D. candidate, Howard University. *Work and study in the Archives Center*, with Dr. Spencer Crew and John Fleckner, from June 4 through August 24, 1984.
- Julie Goldman**, M.A. candidate, Queens University, Canada. *Survey and research in the National Philatelic Collection and the Warshaw Collection of Business Americana*, with Dianne van der Reyden, Division of Conservation, from May 29 through July 30, 1984.

- Frederick Hocker**, B.A. candidate, Middlebury College. *Research on wooden ship construction, organizing the Cropley Collection, and developing half-model lines*, with John Stine and Dr. William Withuhn, Department of the History of Science and Technology, from June 4 through August 31, 1984.
- Jacqueline Jackson**, M.A. candidate, Sangamon State University. *Conceptual planning for the Palm Court and Bandstand performance programs, logistical and administrative support for the Philadelphia outreach program, and production assistant for the Chamber Music Programs*, with Dr. Bernice Reagon, Department of Public Programs, and James Weaver, Department of Social and Cultural History, from February 20 through May 11, 1984.
- Ibrahim Kargbo**, Ph.D. candidate, Howard University. *Black urban communities in the antebellum period*, with Dr. James Horton, Afro-American Communities Project, from June 4 through August 24, 1984.
- Nora Kennedy**, M.S. candidate, University of Delaware. *Work and research in the Paper Conservation Laboratory*, with Scott Odell, Division of Conservation, from July 2 through August 24, 1984.
- Margaret Miller**, M.A. candidate, University of California, Los Angeles. *Development of a program focusing on contemporary American Indian art*, with Dr. Rayna Green, American Indian Studies Program, from September 17 through December 7, 1984.
- Pauline Nunez Morales**, Ph.D. candidate, Catholic University of America. *Organization of an index to material culture of late colonial New Mexico and studies on the role of the Californian missions in American history*, with Richard Ahlborn, Department of Social and Cultural History, from June 4 through August 24, 1984.
- Jennifer Morin**, Smith College/Smithsonian Institution American Studies Intern, B.A. candidate, Smith College. *Work on the Collection of Business Americana promotional campaign*, with Dr. Spencer Crew and John Fleckner, Archives Center, from September 4 through December 31, 1984.
- Paul Rabin**, M.S. candidate, Queens University, Canada. *Work and research in the Paper Conservation Laboratory*, with Dianne van der Reyden and Nikki Horton, Division of Conservation, from November 1 through July 31, 1984.
- Dana Sadarananda**, Ph.D. candidate, Temple University. *Research pertaining to an exhibition on Japanese-Americans and the 442nd Regimental Combat Team*, with Dr. Edward Ezell, Department of Social and Cultural History, from September 4 through November 23, 1984.
- Anne Sheridan**, Smith College/Smithsonian Institution American Studies Intern, B.A. candidate, Smith College. *Nineteenth-century "Life in America" project*, with Keith Melder, Department of Social and Cultural History, from September 4 through December 31, 1984.
- Mumia Shimaka-Mbasu**, Ph.D. candidate, Howard University. *Processing and arranging manuscript material into useful finding aids*, with Dr. Spencer Crew and Robert Harding, Archives Center, from September 17 through December 17, 1984.
- Linda Stiber**, B.F.A., Maryland Institute College of Art. *Work and study in the Warshaw Collection of Business Americana*, with Scott Odell, Division of Conservation, from May 21 through July 13, 1984.
- Camellia Taiwo**, Cooperative Education Program Student, Ph.D. candidate, University of Maryland. *Research and study in the Archives Center*, with Dr. Spencer Crew, from January 23 through July 20, 1984, and *Coordination of public information*, with Josiah Hatch, Department of Public Programs, from July 23 through December 31, 1984.

**Kathleen Willoughby**, Montgomery College. *Work and study in the Warshaw Collection of Business Americana*, with Dianne van der Reyden, Division of Conservation, from July 30 through August 24, 1984.

**Susan White**, M.S. candidate, University of Delaware. *Research and study in the Objects Laboratory*, with Scott Odell, Division of Conservation, from June 14 through August 3, 1984.

**Joseph Windham**, Cooperative Education Program Student, Ph.D. candidate, Howard University. *Basic biographical, interpretive, or classification research study*, with Dr. Spencer Crew, Archives Center, from June 11 through September 21, 1984.

#### NATIONAL MUSEUM OF NATURAL HISTORY

**Deborah Macanic Jones**, M.A. candidate, Howard University. *Compilation of a list of prominent portraits from 1783–1865 on view, and a bibliography on the artists*, with Harry Jackson, Department of Education, from September 24, through December 14, 1984.

**Stella Kao**, B.A., Hampshire College. *Study of conservation of Asian artifacts*, with Carolyn Rose and Dr. Priscilla Linn, Anthropology Conservation Laboratory, from June 4 through August 24, 1984.

**Michael Lambert**, B.A., College of William and Mary. *Gathering data on biological specimen identification and analyzing resources on the cultural ecology of the Moluccas*, with Dr. Paul Taylor, Department of Anthropology, from June 18 through August 20, 1984.

**James Lorand Matory**, A.B., Harvard University. *Research and study on Yoruba, West Africa, culture and religion*, with Dr. Ivan Karp, Department of Anthropology, from June 25 through August 24, 1984.

**Ricardo Soto**, M.S., University of Puerto Rico. *Biosystematics of the marine algae of Costa Rica*, with Dr. James Norris, Department of Botany, from June 4 through August 24, 1984.

#### NATIONAL PORTRAIT GALLERY

**Maya Arai**, Graduate Student, Syracuse University. *Biographical research for upcoming exhibit on broadcast pioneers in America*, with Amy Henderson, Historian's Office, from June 2 through August 7, 1984.

**Amanda Barrett**, Undergraduate Student, Barnard College. *Update of permanent collection checklist data, incorporating recent acquisitions and photos, editing for style, and retyping list of illustrations by Miguel Covarrubias for forthcoming exhibition*, with Frances Wein, from May 21 through August 24, 1984.

**Audrey Paulette Davis**, Undergraduate Student, University of Virginia. *Work on the second advance of the Charles Willson Peale Papers*, with Dr. Lillian Miller, from July 4 through August 3, 1984.

**McNeill Eaton**, Smith College/Smithsonian Institution American Studies Intern, B.A. candidate, Smith College. *Research on and editing of Peale Papers*, with Dr. Lillian Miller, Charles Willson Peale Papers, from September 4 through December 31, 1984.

**Julia Hoke Edwards**, Undergraduate Student, Northern Virginia Community College. *Update of living portrait artists file*, with Susan Gurney, Library, from January 24 through March 30, 1984.

**Denise Ann Ellis**, Undergraduate Student, Spelman College. *Assistance with coordinating material, identifying photographs, checking artists, and assembling biographical material for a nationwide survey*, with Mona Dearborn and Linda Neumaier, Catalog of American Portraits, from June 2 through August 23, 1984.

**Paul Ganz**, Graduate Student, George Washington University. *Development of public programs for two opening exhibits*, with Ken Yellis, Education Department, from June 9 through August 23, 1984.

**Jonathan G. Gillison**, High School Student, School Without Walls. *Development of general tour of collection and observation and participation in school/adult outreach programs*, with Harry Jackson, Education Department, from March 1 through June 30, 1984.

**Susan Gindlin**, Smith College/Smithsonian Institution American Studies Intern, B.A. candidate, Smith College. *Research and curatorial aid for painting exhibition*, with Dr. Carolyn Carr, from September 4, 1984, through December 31, 1985.

**Adrienne Griffin**, Cooperative Education Program Student, M.B.A. candidate, Howard University. *Coordination and planning for the acquisition of a new building*, with Barbara Hart, from January 26 through August 23, 1984.

**Janet Hornreich**, Undergraduate Student, American University. *Filing of catalog and artist descriptions*, with Cecilia Chin, Library, from June 5 through September 7, 1984.

**Peter Inman**, Undergraduate Student, University of California. *Cataloging associative decorative arts collection*, with Robert Stewart, Office of the Curator, from July 2 through August 3, 1984.

**Ellen Caroline Marks**, Undergraduate Student, Smith College. *Labeling and organizing photos, slides, and negatives*, with Suzanne Embree, Photo Sales, from January 4 through January 24, 1984.

**Wendy Neuman**, High School Student, School Without Walls. *Development of general tour of collection and observation and participation in school/adult outreach programs*, with Harry Jackson, Education Department, from February 9 through June 30, 1984.

**Bettina Marsh Niner**, Undergraduate Student, Yale University. *Work at reception desk and research on portraits of presidents*, with Leni Buff, Education Department, from May 2 through August 15, 1984.

**Regina M. Niner**, Undergraduate Student, Trinity College. *Work at reception desk and research on portraits of presidents*, with Leni Buff, Education Department, from May 2 through August 15, 1984.

**Charlotte Perrine**, Undergraduate Student, Smith College. *Research on caricature and inventory on prints*, with Wendy Wick Reaves, Curator of Prints, from June 4 through August 24, 1984.

**Julia Rose**, M.A., George Washington University. *Research and development of four brochures for 'Portraits in Motion' series. Also, development and writing of proposal for "Learning in the Museum: A Teaching Methods Workshop" for student teachers*, with Ken Yellis, Education Department, from January 16 through April 20, 1984.

**Lisa Sommers**, M.A., George Washington University. *Development of Walt Disney kit for existing Education Department outreach program*, with Leni Buff, Education Department, from January 18 through May 30, 1984.

**Ivelia Stredel**, M.A., George Washington University. *Assistance in developing an outreach program and tour for Spanish-speaking audiences*, with Harry Jackson, Education Department, from January 16 through April 12, 1984.

**Carol Wyrick**, B.F.A., Texas Christian University. *Development of artistic emphasis training packet for ongoing Education Department outreach programs/tours*, with Harry Jackson, Education Department, from June 13 through August 23, 1984.

#### OFFICE OF THE ASSISTANT SECRETARY FOR ADMINISTRATION

**David Reeves**, B.S., Bowling Green State University. *Administrative techniques and procedures projects*, with John Jameson, from June 4 through August 10, 1984.

#### OFFICE OF FOLKLIFE PROGRAMS

**Sheila Jackson**, B.S. candidate, University of Virginia, with Dr. Peter Seitel, from June 23 through July 4; July 18 through September 2; and September 12 through December 23, 1983.

**Tanya Jackson**, B.A. candidate, Lafayette College, Pennsylvania, with Dr. Kazadi wa Mukuna, from June 4 through August 24, 1984.

#### *Other Interns*

**Susan Evans**, American University.

**Daniel Metzler**, Davidson College, North Carolina.

#### OFFICE OF PROTECTION SERVICES

**Patricia Welcome**, B.A., University of Saskatchewan. *Preparation of a publication for museums in developing countries for the International Council of Museums*, with Robert Burke, from January 16 through May 16, 1984.

#### OFFICE OF PUBLIC AFFAIRS

**Barbara Graham**, Cooperative Education Program Student, M.A. candidate, University of Maryland. *Work and study in the Assistant Director's Office*, with Madeleine Jacobs, from May 14 through August 31, 1984.

#### SMITHSONIAN ARCHIVES

**Monique Bourque**, B.A., Montana State University. *Survey of scientific illustrations to develop appraisal guidelines to provide for the preservation of illustrations of permanent value*, with William Deiss, from June 4 through August 6, 1984.

**Nancy Austin Moller**, M.A. candidate, Portland State University. *Analysis and design work to identify the Archives' needs, and to prepare the procedures and policies for the use of the Smithsonian Institution Bibliographic Information System (SIBIS)*, with Richard Szary, from August 13 through October 26, 1984.

**Dan Sherburne**, B.A. candidate, Portland State University. *Archival work on the papers of Charles Lewis Gazin*, with William Deiss, from October through December 7, 1984.

#### SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER

**Cynthia Campisano**, Work/Learn Student, M.S. candidate, University of New Hampshire. *Response of a tidal marsh to nutrient enrichment of tidal waters*, with Dr. Thomas Jordan, from May 28 through August 17, 1984.

**David Cramer**, Work/Learn Student, B.A. candidate, University of California, San Diego. *Study of estuarine fish biology*, with Dr. Anson Hines, from June 25 through September 14, 1984.

**Elizabeth Farnsworth**, Work/Learn Student, B.A., Brown University. *Upland plant ecology project*, with Dr. Dennis Whigham, from June 4 through September 14, 1984.

**Marguerite Hiatt**, Work/Learn Student, Anne Arundel Community College. *Liaison between the Smithsonian Environmental Research Center and the Bay Savers at Shady Side*, with Dr. David Correll, from July 9 through August 17, 1984.

**Linda Jones**, B.S. candidate, Vanderbilt University. *Determination of polypeptide composition of chloroplast ribosome small subunits*, with Dr. Maurice Margulies, from May 29, 1983, through August 3, 1984.



**Sahle Melles**, M.S. candidate, Howard University. *Development of a purification procedure for the enzyme farnesyl pyrophosphate synthetase extracted from the fungus Neurospora crassa*, with Dr. Roy Harding, from June 4 through August 31, 1984.

**Devin Reese**, Work/Learn Student, B.S. candidate, Harvard University. *Study of the structure and function of ant communities*, with Dr. James Lynch, from July 9 through December 14, 1984.

**Christine Ross**, Work /Learn Student, B.S. candidate, Stockton State College. *Study of the community structure and population biology of benthic invertebrates in an estuary*, with Dr. Anson Hines, from May 27 through August 24, 1984.

**Lynn Sagramoso**, Work/Learn Student, B.S. candidate, Washington University. *Habitat utilization by migratory warblers*, with Dr. James Lynch, from May 21 through August 17, 1984.

**Anatole Sucher**, Work/Learn Student, B.S. candidate, University of California, Santa Cruz. *Light availability effects upon the structure and function of plankton communities*, with Dr. Maria Faust, from June 18 through September 14, 1984.

#### SMITHSONIAN INSTITUTION TRAVELING EXHIBITION SERVICE

**Cherie Faini**, B.A., Pennsylvania State University. *Exhibition and education assistance to Donald McClelland, Martha Cappelletti, Julia Shepherd, and Marjorie Share*, from September 1983, through January 1984.

**Sharon Fivel**, M.A. candidate, University of Maryland. *Refurbishing of the exhibition, We'll Never Turn Back*, with Betty Teller, from June through August 1984.

**Deborah Klochko**, M.A.T. candidate, George Washington University. *Development of education materials for Sculpture: Exploring 3 Dimensions*, with Julia Shepherd, from January through May 1984.

**Lucinda Leach**, M.A., George Washington University. *Research and implementation of marketing plan for paper panel exhibitions, and research and writing of educational materials*, with Marjorie Share and Susan Schreiber, from May through July 1984.

**Elizabeth Shapiro**, B.A., University of Michigan. *Development of interpretive materials*, with Julia Shepherd and Martha Cappelletti, from August 1983, through January 1984.

**Tracey Soulgas**, M.A. candidate, George Washington University. *Organization of two revised versions of The Shopping Bag: Portable Graphic Art exhibition, and administrative assistance*, with Betty Teller, from May through December 1983.

**Eliza Wong**, M.A. candidate, University of Toronto. *Exhibition, publicity and registration assistance to Matou Goodwin, Marjorie Share, and Mary Jane Clark*, from June through August 1984.

#### SMITHSONIAN OFFICE OF EDUCATIONAL RESEARCH

**Elissa Hozore**, B.S., Yale College. *Development and testing of abstract and concrete informational orientations for families visiting the small mammal house*, with Dr. John Falk, from June 18 through August 17, 1984.

**Rebecca Paravicini**, B.A. candidate, Trinity College. *Work and study in the assigned department*, with Dr. John Falk, from June 4 through August 10, 1984.

**Eric Schmidt**, B.A., Earlham College. *Prototype analyses of learning situations*, with Drs. John Balling and John Falk, from March 5 through May 25, 1984.

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

Short-Term Fellowships in Tropical Biology

- Jacqueline Belwood**, Ph.D. candidate, University of Florida. *The effect of predation on the evolution and mating behavior in Neotropical Katydid*, with Dr. Hindrik Wolda, from September 1 through December 15, 1984.
- Leo Fleishman**, Ph.D. candidate, Cornell University. *The function of agonistic displays in *Anolis limifrons**, with Dr. A. Stanley Rand, from May 31 through August 31, 1984.
- Patricia Hansell**, Ph.D. candidate, Temple University. *Social-economic change in prehistoric central Panama: A Case Study*, with Dr. Richard Cooke, from February 15 through May 16, 1984.
- Diana K. Hews**, M.S. candidate, Oregon State University. *Differential susceptibility of Anuran Larvae to fish predation*, with Dr. A. Stanley Rand, from May 15 through August 15, 1984.
- Kevin Hogan**, Smithsonian Visiting Graduate Student, Ph.D. candidate, University of Illinois. *Comparative analysis of growth form in two palm species*, with Dr. Egbert Leigh, from June 4 through August 10, 1984.
- Richard Lowell**, Ph.D. candidate, University of Alberta. *Effects of Unpredictability on the Structural Strength of Limpet Shells*, with Dr. Harilaos Lessios, from December 12, 1983 through March 13, 1984.
- Lucille McCook**, Ph.D. candidate, Michigan State University. *Systematics of *Pragmipedium* (Orchidaceae; Cypripedioideae)*, with Dr. Robert Dressler, from May 21 through July 21, 1984.
- Anthony McGuire**, Ph.D. candidate, University of Alaska. *Shared pollinator foraging behavior in sympatric species of *Delachampia**, with Dr. David Roubik, from April 1 through June 30, 1984.
- Christopher Petersen**, University of Arizona. *Gender allocation in simultaneous hermaphroditic animals*, with Dr. Ross Robertson, from September 1 through December 15, 1984.
- Anne Richards**, University of Rhode Island. *Effects of fishing on population structure of spiny lobsters*, with Dr. John Cubit, from September 24 through December 15, 1984.
- Paul Spitzer**, Ph.D., Cornell University. *Ecology and behavior of Ospreys, *Pandium haliaetus*, Wintering in Panama*, with Dr. Neal G. Smith, from February 1 through March 31, 1984.
- J. Evan Ward**, M.S. candidate, University of Delaware. *Distributional ecology, feeding behavior, and degree of host specificity of an Ectoparasitic snail in the Genus *Odostomia* in the Bay of Panama Region*, with Drs. Harilaos Lessios and John Christy, from September 1 through November 30, 1984.
- Jess K. Zimmerman**, Ph.D. candidate, University of Utah. *An Examination of Sex Choice in *Catasetum viridiflavum**, with Dr. Alan P. Smith, from July 1 through September 30, 1984.

EXXON Fellowship Program

- Azucena Bonadies and Marta Moreno**, Undergraduate students, University of Panama. *Estudio sobre fiacion de larvas y como el alimento (fitoplancton) afecta el crecimiento y el estado gonodal de los adultos en la ostra, *Ostrea columbiensis**, with Prof. Janzel Villalaz and Dr. Harilaos Lessios, from August 1984, through January 1985.
- Vania da Silva**, Graduate student, University of Sao Paulo, Brazil. *Mating system and male mating success in *Smilisca sila**, with Dr. A. Stanley Rand, from January 24 through April 27, 1984.
- Argentina de Turner**, M.S. candidate, University of Panama. *Estudio de la Biologia de *Panstrongylus humeralis* y determinacion de condiciones de creci-*

miento en el laboratorio, with Drs. Octavio Sousa and Hindrik Wolda, from February 1 through July 31, 1984.

**Franklin Guardia**, Undergraduate student, University of Panama. *Estudio histológico de los cambios en la morfología de las gonadas de Ostrea columbiana*, with Prof. Janzel Villalaz and Dr. Harilaos Lessios, from October 1984, through January 1985.

**Jorge Laguna**, M.S. candidate, Scripps Institute of Oceanography, University of California at San Diego. *Studies of barnacles (Crustacea; Cirripedia; Thoracia) from both coasts of Panama*, with Dr. John Christy, from July 1 through September 5, 1984.

**Marta Lucia Martinez**, Graduate student, Universidad del Valle, Cali, Colombia. *Parental care versus mortality of young in Pelecanus occidentalis in the Bay of Panama*, with Dr. Gene Montgomery.

**Angel Modes**, Undergraduate student, University of Panama. *Estudio sobre la eficacia de diferentes dietas en el crecimiento del langostino, Peneaus stylirostris*, with Drs. Rafael Vasquez and John Christy, from February 1 through July 31, 1984.

**Dora Isabel Quiros**, M.S. candidate, University of Panama. *Contribucion al estudio de los afidos (Homoptera: Aphididae) de Panama, con énfasis a especies asociadas a los cultivos de importancia agrícola*, with Drs. Orencio Fernandez, Cesar Polanco, and Hindrik Wolda, from February 1 through July 31, 1984.

**Antonio Telesca and Ileana Visuetti**, Undergraduate students, University of Panama. *Estudio de Desarrollo Larvario, Migracion y Crecimiento de Prototahaca asperima*, with Prof. Janzel Villalaz and Dr. Harilaos Lessios, from November 1, 1983, through June 30, 1984.

**Wilson Valerio**, Undergraduate student, University of Costa Rica. *El Abrigo de Carabali: un analisis estratigrafico y funcional*, with Dr. Richard Cooke, from January 1 through July 31, 1984.

#### Visiting Scholars

**Paul Colinvaux**, Ohio State University.

**Stephen Emlen**, Cornell University.

**Judith T. Irvine**, Brandeis University.

**I. J. Priede**, University of Aberdeen.

**Robert Read**, San Jose State University.

**Thomas Sebeok**, Indiana University.

## INTERNS PLACED BY OFFICE OF MUSEUM PROGRAMS

### CONSERVATION ANALYTICAL LABORATORY

**Deborah Dulauney**, Johns Hopkins University. *Conservation project related to scientific analysis*, with Tim Padfield, from July 30 through September 28, 1984.

### COOPER-HEWITT MUSEUM

**Sixtine de Naurois**, Ecole du Louvre. *Research in the area of decorative prints and drawings*, with Elaine Dee, from August 1 through September 4, 1984.

### HIRSHHORN MUSEUM AND SCULPTURE GARDEN

**Julie Vanek**, Smith College. *Development of special outreach programming as related to the teaching of art*, with Edward Lawson, from June 11 through August 10, 1984.

## MUSEUM SHOPS

**Elizabeth Clemens**, Elmira College. *Special project related to inventory control and purchases*, with Sam Greenberg, from January 3 through March 2, 1984.

**Robert Stewart**, Emory University. *Generate a report of 1983 and 1984 sales to date of National Air and Space Museum posters*, with Samuel Greenberg, from June 26 through August 17, 1984.

**Ivy Whitlatch**, University of Maryland. *Analysis of budgetary management*, with Samuel Greenberg, from October 15, 1983, to December 4, 1984.

## NATIONAL AIR AND SPACE MUSEUM

**Helen Lucy Harvey**, Dartmouth College. *Research project for the Division of Aeronautics*, with Tom Crouch, from March 22 through December 14, 1984.

**Karen Jane Radel**, Stanford University. *Assisting with several on-going projects, and learning to use specialized laboratory equipment*, with Dale Hrabak, from April 2 through June 5, 1984.

## NATIONAL CAPITAL CHILDREN'S MUSEUM

**Marian Tijmes**, Graduate student from The Netherlands. *Outreach programming as related to children*, from October 15, 1983, to May 4, 1984.

## THE OFFICE OF MUSEUM PROGRAMS

### NATIONAL MUSEUM OF AMERICAN HISTORY

**Kim Abbott**, American University. *Research in the Office of Public Affairs*, with Mary Dyer, from February 3 through April 6, 1984.

**April Adelson**, Sweet Briar College. *Curatorial research in the Division of Community Life*, with Ellen Hughes, from January 9 through January 27, 1984.

**Monica Anderson**, Howard University. *Research in the Office of Public Affairs*, with Mary Dyer, from February 2 through May 31, 1984.

**Peter Beck**, George Washington University. *Development of updated bibliographies for public distribution and cataloguing of a major part of the Moore Ammunition Collection*, with Edward Ezell, from October 1, 1983, through July 31, 1984.

**Marc Courtney Bellassai**, Oberlin Conservatory. *Assistance in keyboard demonstrations and in preparations for chamber music concerts within the Division of Public Programs*, with C. Hoover and J. Weaver, from January 5 through March 30, 1984.

**Katherine C. Blow**, Yale University. *Study of men's and women's appearance and behavior through a reading of eighteenth-century diaries describing Maryland, and through portraits of eighteenth-century Marylanders*, with Shelly Foote, from June 11 through August 10, 1984.

**Crystal Brumme**, Holy Cross Academy. *Research in the Office of Public Affairs*, with Mary Dyer, from May 7 through July 9, 1984.

**D'Anne Evans**, George Mason University. *Preparatory work for "Men and Women" exhibition*, with Shelly Foote, from September 4 through November 2, 1984.

**Michael J. Ettema**, University of Delaware. *Examination and analysis of furnishings and trade literature as related to domestic life of the nineteenth century*, with Rodris Roth, from September 4, 1984, through September 6, 1985.

**Jodene K. Evans**, Luther College. *Special project in the Division of Ceramics and Glass*, with Susan Myers, from April 13 through June 15, 1984.

- Tina Gilbo**, George Mason University. *Research on men's etiquette manuals to find information pertaining to the proposed "Men and Women" exhibition*, with Shelly Foote, from September 4 through November 2, 1984.
- Sophie Gluck**, Sorbonne. *Research project relating to special exhibition of "Men and Women,"* with Shelly Foote, from September 4 through November 6, 1984.
- Frederick Martin Hocker**, Middlebury College. *Organization of Cropley Collection, development of half-model lines, and preparation of bibliography of wooden ship construction*, with William L. Withuhn and John N. Stine, from June 4 through September 1, 1984.
- Jane Horrocks**, University of Maryland. *Research project relating to the Division of Community Life*, with Ellen Hughes, from June 11 through August 3, 1984.
- Wan Zakaria Wan Ismail**, University of Sains, Malaysia. *Research project within the Office of Public Programs*, with Josiah Hatch, from February 2 through April 6, 1984.
- Mary Linda Jefferson**, University of Maryland. *Assist with design and production of special proposed exhibition*, with Walter Lewis, from February 2 through May 2, 1984.
- Edna Joann Johnston**, Guilford College. *Research for Afro-American Communities Project*, with James O. Horton, from September 15 through December 15, 1984.
- Catherine J. Kidman**, Smith College. *Research for the 1830-1890 portion of the "Men and Women" exhibition*, with Shelly Foote, from May 30 through August 24, 1984.
- Kim Kittsby**, Mount Vernon College. *Writing project related to the American Visions Magazine*, with Madeline Bonsignore, from June 2 through September 4, 1984.
- Mary Jo Lazun**, University of Maryland. *Research for special project in the Division of Community Life*, with Ellen Hughes, from January 9 through April 6, 1984.
- Molly LeGath**, Alverno College. *Research for special project in the Office of Public Affairs*, with Mary Dyer, from May 25 through July 27, 1984.
- Jennifer Locke**, George Washington University. *Work with all phases of day-to-day operations of the Division of Military History with emphasis on cataloguing and registration procedures*, with Donald Kloster, from February 2 through May 4, 1984.
- Amy A. Loveless**, George Mason University. *Research for exhibit on gender in costumes/history of costumes*, with Shelly Foote, from February 9 through April 27, 1984.
- Nancy Ann McLaughlin**, Ohio Wesleyan University. *Coordinate media coverage of special exhibitions*, with Mary Dyer, from March 26 through June 1, 1984.
- Janet Anne Mesrobian**, Jackson College, Tufts University. *Research project in the Office of Public Affairs*, with Mary Dyer, from June 11 through August 10, 1984.
- Gabrielle Michalek**, State University College at Buffalo. *Publicizing and evaluating two self-guiding brochures entitled "go" and "Fitting In,"* with Betty Sharpe, from September 10 through November 9, 1984.
- Marian Mitchell**, Bryn Mawr. *Research project for the Office of Public Affairs*, with Mary Dyer, from July 16 through August 17, 1984.
- John B. Morgan**, California State University. *Development of special project related to the Smithsonian Collection of Warship Plans*, with Philip Lundsburg, from November 1 through June 1, 1984.

- Jeanne Morrison**, American University. *Research in the Office of Public Affairs*, with Mary Dyer, from September 17 through November 16, 1984.
- Susan Moses**, Goucher College. *Process oral history tapes; assist the project coordinator in the development of an archival system for storage, retrieval, and description*, with Spencer Crew and Carol Dreyfus, from June 1 through August 31, 1984.
- Christine L. Nichols**. *Provide assistance with special exhibition relating to costuming of men and women of the nineteenth century*, with Shelly Foote, from September 4 through November 6, 1984.
- Elizabeth Noone**, University of Virginia. *Assistance with Festival of India project*, with Shirley Cherkasky, from May 6 through July 27, 1984.
- Mark Parascondola**, Ohio State University. *Research in the Division of Medical Sciences*, with Michael Harris, from June 25 through August 27, 1984.
- Audrine V. Piasecki**, George Mason University. *Research project relating to men's and women's apparel of the nineteenth century for a special exhibition*, with Shelly Foote, from September 4 through November 6, 1984.
- Donald P. Rinaldi**, George Washington University. *Assisting with research and describing firearms on display, as well as assisting in the preparation of brochure to be distributed to the public*, with Ed Ezell, from February 24 through April 20, 1984.
- Diane Rodolitz**, Harvard University. *Assisting with preparation of the temporary exhibit, "At Home on the Road: Autocamping, Motels, and the Rediscovery of America,"* with Roger White, from June 4 through August 17, 1984.
- Lisa Royce**, University of Maryland. *Research project within the Division of Ceramics and Glass*, with Sheila Alexander, from October 15, 1983, to May 4, 1984.
- Pamela Rypkema**, Iowa State University. *Assist in organizing the photograph collections in the Division of Extractive Industries*, with Peter Daniel, from June 1 through August 31, 1984.
- Anne Elizabeth Sachs**, Ursuline College. *Research related to "Godey's Lady's Book" and "The American Ladies Magazine,"* with Shelly Foote, from June 25 through July 27, 1984.
- Kathy Sanborn**, Kenyon College. *Specialized project requiring some research in the Division of Community Life*, with Ellen R. Hughes, from June 25 through September 21, 1984.
- Rebecca Schoener**, Marlboro College. *Work on a three-part internship concerning specific projects within the Division of Ceramics and Glass*, with Regina Blaszczyk, from June 1 through August 31, 1984.
- Calvert Seyboldt**, Boston, Massachusetts. *Special research within the Division of Graphic Arts*, with Helena Wright, from July 23 through September 21, 1984.
- Rebecca Skidmore**, Kenyon College. *Research on special exhibition relating to costuming of the 1830-1890 period*, with Shelly Foote, from May 14 through August 10, 1984.
- Vivian Lea Stevens**, George Washington University. *Research project in the Division of Military History*, with Donald Kloster, from February 9 through April 27, 1984.
- Kathryn Sullivan**, Mohegan College. *Administrative work related to performing arts management*, with Shirley Cherkasky, from February 13 through June 30, 1984.
- Maureen R. Torgerson**, University of Maryland. *Special project within the Division of Ceramics and Glass*, with Susan Myers, from July 1 through September 4, 1984.

**Alden Tullis**, Barnard College/Columbia University. *Project relating to Nineteenth-century costumes of men and women*, with Shelly Foote, from June 18 through August 24, 1984.

**Teresa Wallace**, Boston University. *Special project relating to Political History Division involving women's and immigrants' history*, with Edith Mayo, from October 20, 1983, to January 30, 1984.

**Louise Wehrle**, University of Maryland. *Develop packet of information for use in proposed exhibition*, with Karen Harris, from February 1 through May 4, 1984.

#### NATIONAL MUSEUM OF NATURAL HISTORY

**Sophie Allington**, Middlesex Polytechnic Institute, London. *Study of scientific illustration as related to entomology*, with George Venable, from April 16 through July 16, 1984.

**Nancy Bridges**, Lindenwood College. *Exploration of exhibit design and production techniques*, with Carl Alexander, from September 10 through November 9, 1984.

**Lisa Cox**, University of Maryland. *Graphic arts project related to a specific exhibition*, with Carl Alexander, from September 5 through December 17, 1984.

**Kathleen Egan**, Virginia Institute of Technology. *Research relating to systematics, comparative anatomy, and evolution of fishes*, with David Johnson, from June 11 through September 7, 1984.

**Christopher Hale Hays**, George Washington University. *Exploration of graphics techniques as related to design and production of exhibitions*, with Carl Alexander, from September 10 through December 14, 1984.

**Alison Hilton**, University of Texas. *Organizing photographs and archival material for the Handbook of North American Indians*, with Lorraine Jacoby, from September 17 through November 16, 1984.

**Des Tatana Kahotea**, University of Auckland, New Zealand. *Research within the Division of Anthropology as related to American Indians and other special cultures*, with Adrienne Kaepler, from February 3 through August 3, 1984.

**Margaret Millet**, University of Colorado. *Assisting with operation of the Naturalist Center, and helping with special programming for school groups*, with Richard Efthim, from January 16 through August 10, 1984.

**David Muha**, Georgetown University. *Study of museum exhibit design and production methods*, with Carl Alexander, from March 26 through May 18, 1984.

**Heather Register**, Wake Forest University. *Assisting with archiving past illustration materials for the Handbook of North American Indians*, with Doug Ubelaker, from May 22 through August 10, 1984.

**Daniel Robbins**, Sexton High School. *Specialized projects relating to exhibits design and production (graphics)*, with Carl Alexander, from June 26 through August 27, 1984.

**James Snead**, Beloit College. *Curatorial research on anthropological projects*, with Pricilla Linn, from September 1, 1984, to April 30, 1985.

**Carolyn Stacy Sterling**, College of William and Mary. *Development of educational packet for United States Exploring Expedition exhibition*, with Herman Viola, from April 9 through May 23, 1984.

**Emily Stern**, Yale University. *Silkscreening, mounting displays, repairs, and maintenance of graphics*, with Carl Alexander, from May 21 through August 3, 1984.

**Elizabeth Stoller**, Smith College. *Research for the Division of Birds*, with George Watson, from June 28 through August 24, 1984.

**Tim Thompson**, University of Maryland. *Special projects to gain better understanding of the various functions of the Smithsonian Libraries*, with Victoria Avera, from November 1, 1983, to February 8, 1984.

#### NATIONAL PORTRAIT GALLERY

**Maya Arai**, Saracuse University. *Biographical research for upcoming exhibits at National Portrait Gallery on broadcast pioneers in America*, with Amy Henderson, from June 12 through August 17, 1984.

**Amanda Barrett**, Barnard College/Columbia University. *Inventory project relating to the permanent checklist of the museum's holdings*, with Frances Wein, from June 4 through August 3, 1984.

**Barbara Erikson**, University of Kansas. *Special cataloguing project relating to exhibition catalogues*, with Cecilia Chin, from February 3 through April 6, 1984.

**Paul Ganz**, George Washington University. *Research relating to educational outreach programming*, with Ken Yellis, from June 20 through August 24, 1984.

**Gwen Hill**, Stanford University of Art. *Special project involving registration of photographic materials*, with Suzanne Embry, from February 6 through April 27, 1984.

**Jana L. Hollingsworth**, Carleton College. *Research project relating to the cataloguing of art reference books*, with Susan Gurney, from June 11 through September 1, 1984.

**Peter Inman**, University of California at Santa Barbara. *Curatorial research and cataloguing of associative decorative objects, including furniture*, with Robert G. Stewart, from July 2 through September 4, 1984.

**Katherine L. Ormand**, University of Arizona. *Research in the Office of Education*, with Harry Jackson, from September 4 through November 2, 1984.

#### NATIONAL ZOOLOGICAL PARK

**Paul Martinovich**, University of Toronto. *Evaluation of small mammal house brochure and revision based on results of evaluation*, with Robert Mulcahy, from May 29 through August 17, 1984.

#### OFFICE OF EXHIBITS CENTRAL

**Joy Comstock**, Montana State University. *In-depth study of graphics design and production*, with James Mahoney, from April 3 through July 3, 1984.

**Caitlin McQuade**, Yale University. *Special project relating to exhibit design and production*, with James Mahoney, from September 1 through November 1, 1984.

**Margo Reeves**, George Washington University. *Assistance with graphics design project*, with James Mahoney, from September 13 through November 9, 1984.

**Russell Tromley**, University of Puget Sound. *Graphics research relating to exhibit design and production*, with James Mahoney, from January 3 through April 6, 1984.

**Patrick Wetzel**, University of Maryland. *Examination of graphic arts techniques as related to exhibition production*, with James Mahoney, from January 30 through May 11, 1984.

#### OFFICE OF INTERNATIONAL ACTIVITIES

**Christine Rood**, Ecole du Louvre. *Special projects within the Office of International Activities*, with Brian LeMay, from September 4 through November 2, 1984.



## OFFICE OF MUSEUM PROGRAMS

**Susan Flinn**, Bryn Mawr College. *Inventory of all edited and unedited audio visual holdings of the Conservation Information Program*, with Laura Schneider, June 1 through August 20, 1984.

**Dorothy Ann Foster**, University of New Mexico. *Cataloguing information for the Kellogg Project*, with Phillip Speiss, from June 4 through August 3, 1984.

**Holly J. Hopkins**, Hartwick College. *Museum administration project relating to educational outreach, international affairs, public relations, and other activities of the Office of Museum Programs*, with Raymond Branham, from January 3 through January 31, 1984.

**Karol Keuper**, New Brunswick Department of Historical and Cultural Research, Canada. *Independent scholarly research related to the preparation, publication, and dissemination of a bibliography of museum programs' evaluation data*, with Nancy Fuller, from April 4 through December 14, 1984.

**Steven William Levicki**, University of Michigan. *Assisting with production of Native American portion of the Office of Museum Program's audiovisual presentation, and producing a newsletter for the Native American Program*, with Nancy Fuller, from May 1 through July 7, 1984.

**Adrienne C. Morris**, Georgetown University. *Special assistance with international museum administration project*, with Mary Lynn Perry, from September 5 through December 10, 1984.

**Laura Pope**, University of New Hampshire. *Special research project relating to Native Americans*, with Nancy Fuller, from February 13 through February 17, 1984.

**Norma Kemper Rein**, University of Virginia. *Special assistance with the "Administration in Museum" Project, sponsored by the United States Information Agency and the Smithsonian Institution*, with Mary Lynn Perry, from September 5 through November 2, 1984.

**Donald R. Reinecker**, George Washington University. *Special assistance with Museum Administration Project for international museum professionals*, with Raymond Branham, from January 3 through April 30, 1984.

**Dawn Scher**, Beliot College. *Cataloguing information from education departments from various museums around the U.S. as part of the Kellogg/Museum Reference Center Project*, with Catherine Scott, from May 21 through August 10, 1984.

**George D. Seghers**, University of Missouri. *Revising, editing, and retyping the "Interns and Visiting Professionals Guide to Washington, D.C.,"* with Raymond Branham, from January 30 through April 27, 1984.

**Maria Isabel-Tan**, University of Pennsylvania. *Coordination of Museum Careers Seminars*, with Raymond Branham, from June 25 through August 24, 1984.

**Anne Wheeler**, Wilson College. *Cataloguing and research within the Museum Reference Center*, with Catherine Scott, from January 30 through May 11, 1984.

## OFFICE OF PROTECTION SERVICES

**Patricia Welcome**, Graduate student from the Virgin Islands. *Assistance with video production within the Office of Protective Services*, with Robert Burke, from January 2 through March 2, 1984.

## SMITHSONIAN INSTITUTION TRAVELING EXHIBITION SERVICE

**Elizabeth Drury**, American University. *Special project organizing information on past exhibitions*, with Ann Singer, from September 18 through November 16, 1984.

**Eliza Wong**, Hong Kong Museum of Art. *Assistance with development and coordination of traveling exhibits*, with Marjorie Share, from May 29 through August 17, 1984.

#### SMITHSONIAN INSTITUTION LIBRARIES

**Anthony Zammit**, State Library of South Australia. *Conservation project relating to book binding*, with Johannes Hyltof, from April 2 through June 1, 1984.

#### SMITHSONIAN NATIONAL ASSOCIATES PROGRAM

**Leslie Sayet**, University of Kansas. *Assisting with the travel program operations of the National Associates Program*, with Prudence Clendenning, from March 1 through May 1, 1984.

#### SMITHSONIAN RESIDENT ASSOCIATES PROGRAM

**Laura Jane Murray**, Towson State University. *Special project within the Office of Public Relations*, with Joan Cole, from July 30 through September 28, 1984.

**Adrienne T. Scott**, Indiana University at Bloomington. *Preparation of publicity and information on all RAP events in the performing arts, educational, and cultural areas*, with John Cole, from May 14 through September 14, 1984.

**Katherine Smurr**, University of Puget Sound. *Assisting with public relations project in the Office of Public Relations*, with Joan Cole, from February 2 through April 6, 1984.

**Tracy Warren**, University of Virginia. *Assistance with day-to-day operations of the Office of Public Relations while completing specific writing assignments for dissemination*, with Joan Cole, from September 4 through November 2, 1984.

APPENDIX 5. *Publications of the Smithsonian Institution Press  
in Fiscal Year 1984*

GENERAL PUBLICATIONS

TRADE PUBLICATIONS

Mary Anglemeyer and Eleanor R. Seagraves, compilers. *The Natural Environment: An Annotated Bibliography on Attitudes and Values*. 268 pages. September 15, 1984. Cloth: \$25.00.

Pieter Bleeker. *Atlas Ichtyologique des Indes Orientales Néerlandaises: Plates for Tomes XI–XIV*. 188 pages, 150 color and 2 black-and-white plates. January 24, 1984. Cloth: \$250.00.

Walter J. Boyne. *De Havilland DH-4: From Flaming Coffin to Living Legend*. 120 pages, 3 color and 125 black-and-white illustrations. June 15, 1984. Paper: \$8.95.

Walter J. Boyne and Donald S. Lopez. *Vertical Flight: The Age of the Helicopter*. 272 pages, 216 black-and-white illustrations, 28 figures. June 29, 1984. Paper: \$10.95.

René Bravmann. *African Islam*. 120 pages, 4 color and 94 black-and-white illustrations. December 1, 1983. Cloth: \$25.00; paper: \$15.00.

Milton W. Brown. *One Hundred Masterpieces of American Painting From Public Collections in Washington, D.C.* 240 pages, 100 color and 6 black-and-white illustrations. November 7, 1983. Cloth: \$45.00; paper, \$24.95.

Peter F. Copeland. *Mammals: A Smithsonian Coloring Book*. 30 pages, 29 black-and-white illustrations. September 14, 1984. Paper: \$2.50.

Peter F. Copeland. *Sports: A Smithsonian Coloring Book*. 30 pages, 29 black-and-white illustrations. September 17, 1984. Paper: \$2.50.

Andrew J. Cosentino and Henry Glassie. *The Capital Image: Painters in Washington, 1800–1915*. 280 pages, 6 color and 167 black-and-white illustrations. November 1, 1983. Cloth: \$39.50; paper: \$22.50.

Tom Crouch. *The Eagle Aloft: Two Centuries of the Balloon in America*. 770 pages, 140 black-and-white illustrations. December 18, 1983. Cloth: \$49.50.

R. E. G. Davies. *Airlines of Latin America since 1919*. 704 pages, 400 black-and-white illustrations, 85 maps and charts, 30 tables. April 30, 1984. Cloth: \$47.50.

Rodolphe Meyer De Schauensee. *The Birds of China*. 602 pages, 38 color plates and 39 black-and-white illustrations, 2 maps. April 30, 1984. Cloth: \$45.00; paper: \$29.95.

Howard Ensign Evans and Mary Alice Evans. *Australia: A Natural History*. 208 pages, 24 color and 75 black-and-white illustrations. December 31, 1983. Cloth: \$39.95; paper: \$19.95.

Valerie J. Fletcher. *Dreams and Nightmares: Utopian Visions in Modern Art*. 208 pages, 32 color and 122 black-and-white illustrations. December 30, 1983. Cloth: \$42.50.

Howard N. Fox, Miranda McClintic, and Phyllis Rosenzweig. *Content: A Contemporary Focus 1974–1984*. 184 pages, 84 color and 75 black-and-white illustrations. September 28, 1984. Cloth: \$29.95; paper: \$17.50.

Steven A. Grant. *Scholars' Guide to Washington, D.C.: Russian/Soviet Studies*. 430 pages. December 1, 1983. Cloth: \$29.95; paper: \$15.00.

Kenneth Hafertepe. *America's Castle: The Evolution of the Smithsonian Building and Its Institution, 1840–1878*. 208 pages, 39 black-and-white illustrations. May 21, 1984. Cloth: \$19.95.

Gregory Kennedy. *Rockets, Missiles, and Spacecraft of the National Air and Space Museum*. 165 pages, 116 black-and-white illustrations. October 10, 1983. Paper: \$6.50.

Cynthia Jaffe McCabe. *Artistic Collaboration in the Twentieth Century*. 224 pages, 32 color and 127 black-and-white illustrations. August 1, 1984. Cloth: \$40.00; paper: \$19.95.

Jeffrey A. McNeely and Kenton R. Miller, editors. *National Parks, Conservation, and Development: The Role of Protected Areas in Sustaining Society*. 844 pages, 180 black-and-white illustrations, 50 tables, 41 maps, 19 figures. September 28, 1984. Paper: \$25.00.

Edwin M. Martin. *A Beginner's Guide to Wildflowers of the C&O Towpath*. 72 pages, 120 color and 15 black-and-white illustrations, 1 map. May 31, 1984. Paper: \$8.95.

Christine Minter-Dowd. *Finder's Guide to Decorative Arts in the Smithsonian Institution*. 212 pages, 40 black-and-white illustrations. March 15, 1984. Cloth: \$25.00; paper: \$15.00.

Allan Needell, editor. *The First 25 Years in Space: A Symposium*. 165 pages, 5 black-and-white illustrations. November 14, 1983. Cloth: \$12.50.

Robert W. Nero. *Redwings*. 160 pages, 10 color and 60 black-and-white illustrations. February 1, 1984. Cloth: \$22.50; paper: \$10.95.

Louis A. Pitschmann. *Scholars' Guide to Washington, D.C.: Northwest European Studies*. 452 pages. September 28, 1984. Cloth: \$29.95; paper: \$15.00.

John J. Protopappas and Lin Brown, editors. *Washington on Foot*. 224 pages, 95 black-and-white illustrations, 26 maps. May 31, 1984. Paper: \$4.95.

Werner Rauh. *The Wonderful World of Succulents: Cultivation and Description of Selected Succulent Plants Other Than Cacti*. 164 pages, 62 color and 627 black-and-white illustrations, 2 maps. September 19, 1984. Cloth: \$49.50.

Tom Simkin and Richard S. Fiske. *Krakatau 1883: The Volcanic Eruption and Its Effects*. 464 pages, 49 color and 139 black-and-white illustrations. December 31, 1983. Cloth: \$25.00; paper: \$19.95.

C. G. Sweeting. *Combat Flying Clothing: Army Air Forces Clothing During World War II*. 240 pages, 158 black-and-white illustrations. March 30, 1984. Cloth: \$29.50.

Nancy Sweezy. *Raised in Clay: The Southern Pottery Tradition*. 280 pages, 107 line drawings, 201 black-and-white photographs, 8 color plates, 1 map. August 1, 1984. Cloth: \$39.95; paper: \$19.95.

Mary Henderson Valdivia. *At Home in the Sky: The Aviation Art of Frank Wootton*. 76 pages, 16 color and 15 black-and-white illustrations. August 31, 1984. Paper: \$9.95.

James A. Van Allen. *Origins of Magnetospheric Physics*. 144 pages. November 25, 1983. Cloth: \$19.95.

Charles Van Ravenswaay. *Drawn From Nature: The Botanical Art of Joseph Prestele and His Sons*. 360 pages, 95 color plates, 43 black-and-white illustrations. September 28, 1984. Cloth: \$45.00.

Austin B. Williams. *Shrimps, Lobsters, and Crabs of the Atlantic Coast of the Eastern United States, Maine to Florida*. 568 pages, 380 black-and-white illustrations. February 16, 1984. Cloth: \$40.00.

Hans Wirz and Richard Striner. *Washington Deco: Art Deco Design in the Nation's Capital*. 112 pages, 15 color and 85 black-and-white illustrations. September 17, 1984. Cloth: \$25.00.

E. T. Wooldridge, Jr. *Winged Wonders: The Story of the Flying Wings*. 230 pages, 224 black-and-white illustrations. December 15, 1983. Cloth: \$25.00; paper: \$14.95.

#### TRADE REPRINTS

R. E. G. Davies. *Airlines of the U.S. since 1914*. 760 pages, 511 black-and-white illustrations, 29 maps, 27 tables. April, 1984. Cloth: \$39.95.

Von Hardesty and Dominick Pisano. *Black Wings: The American Black in Aviation*. 80 pages, 6 color and 200 black-and-white illustrations. April, 1984. Paper: \$6.95.

Gregory P. Kennedy. *Vengeance Weapon 2: The V-2 Guided Missile*. 88 pages, 113 black-and-white illustrations. July, 1984. Paper: \$9.95.

Robert J. List. *Smithsonian Meteorological Tables*. 540 pages. August, 1984. Cloth: \$22.50.

Otto Mayr and Robert C. Post, editors. *Yankee Enterprise: The Rise of the American System of Manufactures*. 236 pages, 48 black-and-white illustrations. July, 1984. Cloth: \$19.95; paper: \$9.95.

Edward Nelson. *The Eskimo About Bering Strait*. 520 pages, 117 black-and-white illustrations, 165 figures. December, 1983. Paper: \$25.00.

Jisaburo Ohwi. *Flora of Japan*. 1,068 pages, 26 black-and-white photographs, 17 figures, 2 maps. April, 1984. Cloth: \$49.50.

John R. Swanton. *Indians of the Southeastern United States*. 1,068 pages, 157 black-and-white illustrations. August, 1984. Paper: \$25.00.

Victor Turner, editor. *Celebration: Studies in Festivity and Ritual*. 320 pages, 118 black-and-white illustrations. January, 1984. Cloth: \$25.00; paper: \$9.95.

Edwin N. Wilmsen and Frank H. H. Roberts, Jr. *Lindenmeier, 1934-1974*. 204 pages, 166 black-and-white illustrations. March, 1984. Paper: \$27.50.

#### DIRECT-MAIL PUBLICATIONS

Edward S. Ayensu, Vernon H. Heywood, and Grenville L. Lucas. *Our Green and Living World*. 256 pages, 240 color and 14 black-and-white illustrations. September 15, 1984. Associates: \$19.95; Non-Associates: \$21.96; Trade: \$25.00.

Stanley M. Minasian, Kenneth C. Balcomb, III, and Larry Foster. *The World's Whales: The Complete Illustrated Guide*. 224 pages, 230 color and 105 black-and-white illustrations. September 29, 1984. Associates: \$21.96; Non-Associates: \$23.97; Trade: \$27.50.

Edwards Park. *Treasures of the Smithsonian*. 496 pages, 400 color and 25 black-and-white illustrations. October 5, 1983. Associates: \$34.96; Non-Associates: \$38.96; Trade: \$60.00.

Robert C. Post, editor. *Every Four Years: The American Presidency*. 228 pages, 116 color and 115 black-and-white illustrations. July 11, 1984. Associates: \$16.98; Non-Associates: \$18.96; Trade: \$21.95.

### RECORDINGS

James R. Morris, J. R. Taylor, and Dwight Blocker Bowers. *American Popular Song: Six Decades of Songwriters and Singers*. 152 pages, 103 illustrations. Accompanies 7 LPs or 4 cassettes of 110 archival recordings. September 28, 1984. \$42.96.

### ANNUAL REPORTS

*American Historical Association Annual Report, 1982*. 175 pages. November, 1983.

*Report of the Smithsonian Tropical Research Institute October 1, 1982, through September 30, 1983*. 34 pages, 3 black-and-white illustrations. September, 1984.

*Smithsonian Year 1983*. 666 pages, 78 black-and-white illustrations. May, 1984.

### BOOKS

William F. Foshag. *Mineralogical Studies on Guatemalen Jade*. 68 pages, 8 black-and-white illustrations. February 15, 1984.

Marie Helene-Sachet. *Atoll Research Bulletin 260-272*. 356 pages, 71 black-and-white illustrations. November 15, 1983.

### BOOKLETS

#### *Freer Gallery of Art*

*James McNeill Whistler at the Freer Gallery of Art*. 12 pages, 7 color and 1 black-and-white illustration, 1 map. May 1984.

#### *James Smithson Society*

*James Smithson Society Eighth Annual Dinner Program*. 24 pages. September 1984.

#### *National Museum of American Art*

*Nineteenth-Century Washington: A City-Wide Celebration*. 20 pages, 2 black-and-white illustrations. October 1983.

*General Information*. 10 pages, 8 black-and-white illustrations. June 1984.

#### *National Museum of Natural History*

*Windows on the World: The Department of Invertebrate Zoology*. 20 pages, 17 color and 11 black-and-white illustrations. August 1984.

*Office of Contributing Membership*

*The Smithsonian Mace and Its Symbolism*. 44 pages, 1 color and 8 black-and-white illustrations. September 1984.

*Office of Museum Programs*

*National Museum Act Guidelines for 1985 Grant Programs*. 28 pages. June 1984.

*Office of Personnel Administration*

*Employment at the Smithsonian*. 16 pages, 8 black-and-white illustrations. September 1984.

*Office of Public Affairs*

*The Smithsonian*. 10 pages, 22 black-and-white illustrations. January 1984.

*A Guide to the Smithsonian for Disabled Visitors*. 27 pages. January 1984.

*Science at the Smithsonian*. 30 pages, 18 color and 41 black-and-white illustrations. August 1984.

*Smithsonian Institution Archives*

*Smithsonian Institution Archival, Manuscript, and Special Collection Resources*. 12 pages. August 1984.

*Smithsonian Institution Libraries*

*Smithsonian Institution Libraries Loan Policies*. 6 pages, 1 black-and-white illustration. May 1984.

*Smithsonian Institution Press*

*SI Press Instructions for Word Processing to Typesetting*. 40 pages. February 1984.

EXHIBITION CATALOGS

*Hirshhorn Museum and Sculpture Garden*

Valerie J. Fletcher. *Utopian Visions in Modern Art*. 208 pages, 32 color and 122 black-and-white illustrations. December 1983.

Howard N. Fox, Miranda McClintic, and Phyllis Rosenzweig. *Content: A Contemporary Focus, 1974-1984*. 784 pages, 84 color and 75 black-and-white illustrations. September 1984.

Cynthia Jaffe McCabe. *Artistic Collaboration in the Twentieth Century*. 224 pages, 32 color and 127 black-and-white illustrations. August 1984.

Virginia Wageman. *Drawings 1974-1984*. 256 pages, 21 color and 127 black-and-white illustrations. March 1984.

*National Museum of American Art*

Janet A. Flint. *Charles W. Hawthorne: The Late Watercolors*. 28 pages, 5 color and 15 black-and-white illustrations. November 1983.

———. *Provincetown Printers: A Woodcut Tradition*. 56 pages, 3 color and 28 black-and-white illustrations. December 1983.

Merry Amanda Foresta. *Exposed and Developed: Photography Sponsored by the National Endowment for the Arts*. 144 pages, 6 color and 58 black-and-white illustrations. May 1984.

Virginia Mecklenberg. *Wood Works: Constructions by Robert Indiana*. 64 pages, 4 color and 49 black-and-white illustrations. June 1984.

Martina Roudabush Norelli. *Werner Drewes: Sixty-five Years of Printmaking*. 58 pages, 3 color and 30 black-and-white illustrations. August 1984.

*National Portrait Gallery*

Margaret C. S. Christman. *Adventurous Pursuits: Americans and the China Trade 1784-1894*. 171 pages, 11 color and 67 black-and-white illustrations, 1 map. March 1984.

William F. Stapp. *Robert Cornelius: Portraits from the Dawn of Photography*. 152 pages, 53 black-and-white illustrations. December 1983.

*Smithsonian Institution Libraries*

Ellen Wells. *Donor Exhibition: Gifts to the Smithsonian Institution Libraries 1982*. 15 pages, 4 black-and-white illustrations. November 1983.

*Smithsonian Institution Traveling Exhibition Service*

Edwards Park. *Treasures of the Smithsonian*. 80 pages, 80 color illustrations. August 1984.

**EXHIBITION CHECKLISTS**

*National Museum of American Art*

*Fanfare: Fans of the 18th and 19th Centuries*. 6 pages, 1 color and 3 black-and-white illustrations. January 1984.

*Smithsonian Institution Traveling Exhibition Service*

*Treasures from the Smithsonian Institution*. 10 pages. August 1984.

**FLYERS**

*Freer Gallery of Art*

*Chinese Ceramics*. 2 pages. October 1983.

*Chinese Bronze Mirrors*. 2 pages. April 1984.

*Japanese Screens*. 2 pages. September 1984.

*The Peacock and the Princess from the Land of Porcelain*. 2 pages. May 1984.

*National Air and Space Museum*

*NASM Education Division Information Flyer*. 6 pages, 1 black-and-white illustration. April 1984.

*National Museum of African Art*

*African Mankala*. 4 pages. May 1984.

*National Museum of African Art*. 8 pages. July 1984.

*National Museum of American Art*

*Harvey K. Littleton*. 4 pages, 1 black-and-white illustration. February 1984.

*Renwick Gallery of the National Museum of American Art*. 6 pages, 2 color and 9 black-and-white illustrations. February 1984.

*Wood Works: Constructions by Robert Indiana*. 6 pages, 2 black-and-white illustrations. April 1984.



*National Museum of Natural History*

*Visiting the Natural History Museum with School Groups.* 4 pages, 8 black-and-white illustrations. October 1983.

FOLDERS

*National Museum of African Art*

*Praise Poems: The Katherine White Collection.* 12 pages, 6 black-and-white illustrations. September 1984.

*National Museum of American History*

*Harry S Truman Centennial.* 12 pages, 3 black-and-white illustrations. March 1984.

*Office of Fellowships and Grants*

*American Scholarly Research Board: Council of American Overseas Research Centers.* 12 pages. December 1983.

*Office of Horticulture*

*The Trees of Christmas.* 6 pages, 1 black-and-white illustration. December 1984.

*Office of Personnel Administration*

*Employment Orientation Folder.* November 1983.

*Smithsonian Institution Archives*

*Smithsonian Institution Archives.* 8 pages, 4 black-and-white illustrations. November 1983.

*Smithsonian Institution Libraries*

*Museum Support Center Library.* 6 pages, 1 line drawing. September 1984.

INVITATIONS

*Freer Gallery of Art*

*James McNeill Whistler at the Freer Gallery of Art.* 4 pages, 1 envelope, 1 color illustration. April 1984.

*National Museum of American Art*

*Sawtooths and Other Ranges of Imagination: Contemporary Art from Idaho.* 4 pages, 1 color illustration. November 1983.

*Contemporary Australian Ceramics.* 2 pages. November 1983.

*Harvey K. Littleton: Glass Sculptures and Ceramics.* March 1984.

*An Evening with Ossie Davis and Ruby Dee. To Benefit Continuing Traditions: A Festival of Afro-American Arts.* 8 pages, 2 envelopes. April 1984.

*Exposed and Developed: Photography Sponsored by the National Endowment for the Arts.* 6 pages, 2 black-and-white illustrations. April 1984.

*Werner Drewes: Sixty-five Years of Printmaking.* 4 pages, 2 black-and-white illustrations. August 1984.

*Chicago Furniture: Art, Craft, and Industry.* 6 pages, 3 black-and-white illustrations. September 1984.

*Newcomb Pottery: An Enterprise for Southern Women 1895–1940.* 6 pages, 1 black-and-white illustration. September 1984.

*Office of Contributing Membership*

*Contributing Members' Evening at the Freer.* March 1984.

*Fanfare: Contributing Members' Ball at the Renwick.* March 1984.

*Office of Elementary and Secondary Education*

*Through Looking to Learning.* October 1983.

*Computers and Human Learning.* November 1983.

*Holiday Reception for Teachers.* November 1983.

*Teacher's Day.* March 1984.

*Smithsonian National Associates Program*

*Treasures from the Shanghai Museum: 6,000 Years of Chinese Art.* 8 pages, 3 color illustrations. September 1984.

MISCELLANEOUS

*Office of Elementary and Secondary Education*

*Art to Zoo.*

*Let's Go to the Smithsonian.*

*Smithsonian Journeys.* 14 pages, 17 color and 29 black-and-white illustrations. September 1984.

*Smithsonian Journeys Teachers' Guide to Issue 1.* 6 pages. September 1984.

*Office of Special Events*

*Smithsonian Institution Diplomatic Dinner.* (menu and program) 4 pages, 1 black-and-white illustration. March 1984.

POSTERS

*National Museum of American Art*

*The Capital Image: Painters in Washington.* October 1983.

*Sawtooths and Other Ranges of Imagination: Contemporary Art from Idaho.* November 1983.

*Freer Gallery of Art*

*James McNeill Whistler at the Freer.* March 1984.

*National Museum of Natural History*

*Common Winterberries of the Northeast.* November 1983.

*Roger Tory Peterson: American Warblers–I.* June 1984.

*Office of Elementary and Secondary Education*

*Intern '84.* November 1983.

*Office of Fellowships and Grants*

*Fellowships in Residence at the Smithsonian Institution.* August 1984.

Smithsonian Institution Libraries

Emergency Water Damage Procedures. November 1983.

Smithsonian Institution Traveling Exhibition Service

Treasures from the Smithsonian Institution at the Royal Scottish Museum, Edinburgh. August 1984.

SERIES PUBLICATIONS

SMITHSONIAN CONTRIBUTIONS TO THE EARTH SCIENCES

26. Ursula B. Marvin and Brian Mason, editors. "Field and Laboratory Investigations of Meteorites from Victoria Land, Antarctica." 134 pages, frontispiece, 79 figures, 11 tables. June 8, 1984.

SMITHSONIAN CONTRIBUTIONS TO THE MARINE SCIENCES

21. Ernani G. Meñez, Ronald C. Phillips, and Hilconida P. Calumpang. "Seagrasses from the Philippines." 40 pages, 26 figures. December 1, 1983.

22. Craig W. Schneider. "The Red Algal Genus *Audouinella* Bory (Nemaliales: Acrochaetiaceae) from North Carolina." 25 pages, 3 figures. December 21, 1983.

23. Maurice Gennesseaux and Daniel Jean Stanley. "Neogene to Recent Displacement and Contact of Sardinian and Tunisian Margins, Central Mediterranean." 21 pages, 9 figures. December 14, 1983.

SMITHSONIAN CONTRIBUTIONS TO PALEOBIOLOGY

50. G. Arthur Cooper. "The Terabratulacea (Brachiopoda) Triassic to Recent: A Study of the Brachidia (Loops)." 445 pages, 17 figures, 77 plates, 86 tables. October 3, 1983.

54. Jessica A. Harrison. "The Carnivora of the Edson Local Fauna (Late Hemphillian), Kansas." 42 pages, 18 figures. November 16, 1983.

55. Porter M. Kier. "The Fossil Spatangoid Echinoids of Cuba." 336 pages, frontispiece, 45 figures, 90 pages. March 21, 1984.

56. Porter M. Kier. "Echinoids from the Triassic (St. Cassian) of Italy, Their Lantern Supports and a Revised Phylogeny of Triassic Echinoids." 41 pages, 4 figures, 14 plates. June 8, 1984.

SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY

382. Thomas E. Bowman and Inam U. Tareen. "Cymothoidae from Fishes of Kuwait (Arabian Gulf) (Crustacea: Isopoda)." 30 pages, 20 figures, 2 tables. October 13, 1983.

383. Louis S. Kornicker. "New Species of *Dantya* from the Indian Ocean (Ostracoda: Sarsiellidae: Dantyninae)." 18 pages, 10 figures. October 5, 1983.

384. Fenner A. Chace, Jr. "The *Atya*-like Shrimps of the Indo-Pacific Region (Decapoda: Atyidae)." 54 pages, 24 figures. October 13, 1983.

385. Richard L. Zusi and Gregory D. Bentz. "Myology of the Purple-throated Carib (*Eulampis jugularis*) and Other Hummingbirds (Aves: Trochilidae)." 70 pages, 20 figures. March 9, 1984.

386. Koichiro Nakamura and C. Allan Child. "Shallow-Water Pycnogonida from the Izu Peninsula, Japan." 71 pages, 21 figures. November 23, 1983.

387. Karl V. Krombein. "Biosystematic Studies of Ceylonese Wasps, XII: Behavioral and Life History Notes on Some Sphecidae (Hymenoptera: Sphecoidea)." 30 pages, 5 figures. March 1, 1984.
388. Karl V. Krombein. "Biosystematic Studies of Ceylonese Wasps, XIII: A Monograph of the Stizinae (Hymenoptera: Sphecoidea, Nyssonidae)." 37 pages, 30 figures. February 15, 1984.
389. Roger Cressey. "Parasitic Copepods from the Gulf of Mexico and Caribbean Sea, II: Bomolochidae." 35 pages, 119 figures. November 4, 1983.
390. Victor G. Springer. "*Tyson belos*, New Genus and Species of Western Pacific Fish (Gobiidae, Xenisthmidae), with Discussions of Gobioid Osteology and Classification." 40 pages, 19 figures. December 21, 1983.
391. Reinhardt Møbjerg Kristensen and Robert P. Higgins. "Revision of *Styraconyx* (Tardigrada: Halechiniscidae), with Descriptions of Two New Species from Disko Bay, West Greenland." 40 pages, 51 figures, 1 map, 5 tables. January 13, 1984.
392. James M. Dietz. "Ecology and Social Organization of the Maned Wolf (*Chrysocyon brachyurus*)." 51 pages, 24 figures, 21 tables. May 4, 1984.
393. Louis S. Kornicker. "Philomedidae of the Continental Shelf of Eastern North America and Northern Gulf of Mexico (Ostracoda: Myodocopina)." 78 pages, 45 figures, 3 maps, 1 table. April 18, 1984.
394. Brian Kensley. "New Records of Bresiliid Shrimp from Australia, South Africa, Caribbean, and Gulf of Mexico (Decapoda: Natantia: Caridea)." 31 pages, 22 figures, 1 table. December 21, 1983.
395. Richard L. Zusi. "A Functional and Evolutionary Analysis of Rhynchokeles in Birds." 40 pages, 20 figures, 2 tables. June 29, 1984.
397. Fenner A. Chace, Jr. "The Caridean Shrimps (Crustacea: Decapoda) of the Albatross Philippine Expedition, 1907-1910, Part 2: Families Glyptocrangonidae and Crangonidae." 63 pages, 24 figures. June 20, 1984.
398. Oliver S. Flint, Jr. "The Genus *Brachycentrus* in North America, with a Proposed Phylogeny of the Genera of Brachycentridae (Trichoptera)." 58 pages, 104 figures. September 26, 1984.
400. Richard P. Vari. "Systematics of the Neotropical Characiform Genus *Potamorhina* (Pisces: Characiformes)." 36 pages, 17 figures. August 29, 1984.
401. Louis S. Kornicker. "Cyprinidae of the Continental Shelves of Southeastern North America, the Northern Gulf of Mexico, and the West Indies (Ostracoda: Myodocopina)." 37 pages, 17 figures, 2 maps, 1 table. June 13, 1984.

#### SMITHSONIAN STUDIES IN AIR AND SPACE

5. Kathleen L. Brooks-Pazmany. "United States Women in Aviation, 1919-1929." 57 pages, 79 figures. December 9, 1983.

#### SMITHSONIAN STUDIES IN HISTORY AND TECHNOLOGY

44. Nancy Groce. "The Hammered Dulcimer in America." 93 pages, 40 figures. December 30, 1983.
45. Sharon Gibbs with George Saliba. "Planispheric Astrolabes from the National Museum of American History." 231 pages, 130 figures, 23 tables. June 14, 1984.

APPENDIX 6. *Publications of the Staff of the Smithsonian Institution and Its Subsidiaries in Fiscal Year 1984*

SCIENCE

NATIONAL AIR AND SPACE MUSEUM

Office of the Director

- Boyne, Walter J. *de Havilland DH-4: From Flaming Coffin to Living Legend*. Washington, D.C.: Smithsonian Institution Press, 1984.
- . "Historical Aircraft Preservation—The View from NASM." *Aero-space Historian* (Spring 1984).
- . "Curtiss-Wright Courtney Amphibian CA-1." *Air Line Pilot* 52(9) (1983).
- . "Huff-Daland Pelican." *Air Line Pilot* 52(10) (1983).
- . "The Martin Model 139-WH3." *Air Line Pilot* 52(11) (1983).
- . "Zeppelin Staaken E. 4/20." *Air Line Pilot* 52(12) (1983).
- . "Vought XF5U-1, Flying Flapjack." *Air Line Pilot* 53(1) (1984).
- . "Harlow PC-5." *Air Line Pilot* 53(2) (1984).
- . "Various Airplanes." *Air Line Pilot* 53(3) (1984).
- . "Charles Healy Day's Errant Biplane." *Air Line Pilot* 53(4) (1984).
- . "Curtiss R3C2." *Air Line Pilot* 53(5) (1984).
- . "Merrill Safety-Plane 'Decalage'." *Air Line Pilot* 53(6) (1984).
- . "Vanderbilt Air Yacht." *Air Line Pilot* 53(7) (1984).
- . "Mercury S-1 Special." *Air Line Pilot* 53(8) (August 1984).
- . "Dayton-Wright RB Racer." *Air Line Pilot* 53(9) (September 1984).
- . "The Evolution of Jet Fighters: A New Point of View." *Air University Review* (January-February 1984).
- . "The Postwar Role of the DH-4." *Air World* 36(1) (1984).
- . "Macho Masochism." *AOPA Pilot* 26(10) (1983).
- . "Sopwiths and Sunfish." *AOPA Pilot* 26(11) (1983).
- . "Stuff and Nonsense." *AOPA Pilot* 26(12) (1983).
- . "Natural Pilots." *AOPA Pilot* 27(1) (1984).
- . "No Sale." *AOPA Pilot* 27(3) (1984).
- . "Speed Bills." *AOPA Pilot* 27(4) (1984).
- . "Racing Renaissance." *AOPA Pilot* 27(6) (1984).
- . "Oshkosh Pilgrimage." *AOPA Pilot* 27(7) (1984).
- . "Further Lessons from Detroit." *AOPA Pilot* 27(8) (August 1984).
- . "Dog Tails." *AOPA Pilot* 27(9) (1984).
- . "National Air & Space Museum—Plans for the Future." *Aviation Space* (Summer 1984).
- . "Testing the Waters." *1984 Water Flying Annual* (June 1984).
- . "The Dulles Wing of NASM." *Sport Aviation* 33(8) (August 1984).
- Boyne, Walter J. and Lopez, Donald S., eds. "Uplifting Experiences: The Helpful Helicopters." pp. 101-15 in *Vertical Flight: The Age of the Helicopter*. Washington, D.C.: Smithsonian Institution Press, 1984.

———. *Vertical Flight: The Age of the Helicopter*. Washington, D.C.: Smithsonian Institution Press, 1984.

———. *Vertical Flight: The Age of the Helicopter*. 1984. Reprint. Washington, D.C.: Smithsonian Institution Press, 1984.

#### *Office of the Deputy Director*

Lopez, Donald S. "Spitfire: A Test Pilot's Story." *Air Force Magazine* 67(5) (1984).

———. "Harrier: Ski Jump to Victory." *Air Force Magazine* 67(9)(1984).

Lopez, Donald S., and Boyne, Walter J., eds. "Uplifting Experiences: The Helpful Helicopters." pp. 101–15 in *Vertical Flight: The Age of the Helicopter*. Washington, D.C.: Smithsonian Institution Press, 1984.

———. *Vertical Flight: The Age of the Helicopter*. Washington, D.C.: Smithsonian Institution Press, 1984.

#### *Office of External Affairs*

Cipalla, Rita; Dubro, Linda S.; McMahon, Helen Claire; Oakes, Claudia; and Owens, Edna. *National Air and Space Museum Style Manual*. Washington, D.C.: National Air and Space Museum, 1984.

van der Linden, F. Robert. *Samuel P. Langley Theater: National Air and Space Museum*. Washington, D.C.: National Air and Space Museum, 1984.

#### *Center for Earth and Planetary Studies*

Andre, C. G.; Blodget, H. W.; and Minor, T. B. [Abstract] "Lithologic Investigations Using Multiband/Multisensor Middle Infrared Data from Space." *EOS* 65(1984):301.

Blodget, H. W.; Witt, R. G.; Andre, C. G.; Marcell, R.; and Minors, T. [Summary] "Multispectral Thermal Infrared Satellite Data for Geologic Applications." In *International Symposium on Remote Sensing of Environment, Third Thematic Conference: Remote Sensing for Exploration Geology*. Colorado Springs: April 16–19, 1984.

Hubbard, N., and Andre, C. G. "Magma Genesis in a Battered Moon: Effects of Basin-Forming Impacts." *The Moon and the Planets* 29(1983):15–37.

Jacobberger, P. A.; Arvidson, R. E.; and Rashka, D. L. "Application of Landsat MSS Data and Sediment Spectral Reflectance Measurements to Mapping of the Meatiq Dome, Egypt." *Geology* 11(1983):587–91.

Jacobberger, P. A. [Summary] "Enhanced Discriminability Within Landsat MSS Images Using Pre-determined Spectral Data Subsets for Principal Component Analysis: An Example over the Inland Niger Delta, Mali." In *International Symposium on Remote Sensing of Environment, Third Thematic Conference: Remote Sensing for Exploration Geology*. Colorado Springs: April 16–19, 1984.

Jacobberger, P. A., and Maxwell, T. A. [Summary] "Sediment Provenance Determinations as a Means of Mapping Lithologies in the Southern Sinai, Egypt." In *International Symposium on Remote Sensing of Environment, Third Thematic Conference: Remote Sensing for Exploration Geology*. Colorado Springs: April 16–19, 1984.

Maxwell, T. A., and Barnett, S. J. [Abstract] "Structure and Morphology of the Ancient Cratered Terrain—Smooth Plains Boundary Zone in the Eastern Hemisphere of Mars." In *Lunar and Planetary Science XV*, pp. 521–22. Houston: The Lunar and Planetary Institute, 1984.

Maxwell, T. A. and Avery, V. F. [Abstract] "Morphometry of Buried Craters: Lava Thickness Estimates by Simulated Flooding." In *Reports of Planetary Geology Program—1983*, pp. 107–9. NASA TM-86246, 1984.

- Watters, T. R. [Abstract] "Gravity Induced Compressive Stress in the Tharsis Region of Mars." In *Lunar and Planetary Science XV*, pp. 898-99. Houston: The Lunar and Planetary Institute, 1984.
- Watters, T. R., and Maxwell, T. A. "Cross-Cutting Relations and Relative Ages of Ridges and Faults in the Tharsis Region of Mars." *Icarus* 56(1983): 278-98.
- . [Abstract] "Compressional Features in the Tharsis Region of Mars: I. Geographic Extent of Deformation." In *Reports of Planetary Geology Program—1983*, pp. 301-03. NASA TM-86426, 1984.
- . [Abstract] "Compressional Features in the Tharsis Region of Mars: II. Orientations and Timing of Deformation." In *Reports of Planetary Geology Program—1983*, pp. 304-06. NASA TM-86426, 1984.
- Wynn, J. C.; Waitzeneger, B.; Watters, T. R.; Mirzai-Pouinak, H.; and Gardner, A. "Aeromagnetic Survey and Interpretive Maps of the San Simon 15' Quadrangle Arizona and New Mexico." *U.S. Geological Survey Open-File Report 83-631*.

#### Department of Aeronautics

- Brooks-Pazmany, Kathleen. "United States Women in Aviation 1920-1929." *Smithsonian Studies in Air and Space*, no. 5. Washington, D.C.: Smithsonian Institution Press, 1983.
- Crouch, Tom D. *The Eagle Aloft: Two Centuries of the Balloon in America*. Washington, D.C.: Smithsonian Institution Press, 1983.
- . "Ecker Flying Boat." *World War I Aeronautics* (99)(1984).
- . "Dr. Franklin's Window: Americans View the Birth of Flight." *The Museologist* 46(167)(1984).
- . "Some Thoughts on John Montgomery." *Bungee Cord* (Fall)(1984).
- . "Fair Voyagers: Intrepid Women in American Ballooning." *Ballooning* 18(2)(1984).
- . "Report of SHOT Annual Meeting Session on Early Aeronautics." *Technology and Culture* 25(4)(1984).
- Davies, R. E. G. *Airlines of Latin America since 1919*. London: Putnam, 1984, and Washington, D.C.: Smithsonian Institution Press, 1984.
- . "Merrill Riddick—First FAM-3 Contractor." *Airpost Journal* 55(3)(1983).
- . "The First F. A. M. Routes, 1920-1928." *Airpost Journal* 55(6)(1983).
- . "Air Transportation in the Air and Space Museum." *Washington Metrorail* (Summer)(1984).
- . *Continental Airlines—The First Fifty Years*. Houston: Pioneer Publications, Inc., 1984.
- . "The Brazilian Regionals." *Exxon Air World* (Summer)(1984).
- Hardesty, Von D. and Pisano, Dominick A. *Black Wings: The American Black in Aviation*. 1983. Reprint. Washington, D.C.: Smithsonian Institution Press, 1984.
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- Mikesh, Robert C. "Recognition Models—the Government-Issue Miniature Air Force." *Fine Scale Modeler* 2(4)(1984).
- Pisano, Dominick A., and Hardesty, Von. *Black Wings: The American Black in Aviation*. 1983. Reprint. Washington, D.C.: Smithsonian Institution Press, 1984.
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- Boyne and Donald S. Lopez, eds. Washington, D.C.: Smithsonian Institution Press, 1984.
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- . "Narrow Margin: The Reed Project." *Airpower* 14(1)(1984).
- . "Gray Eminence: The Focke-Wulf FW 190 F-9." *Wings* 14(1)(1984).
- Sweeting, C. G. *Combat Flying Clothing: Army Air Forces Clothing During World War II*. Washington, D.C.: Smithsonian Institution Press, 1984.
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- Wooldrige, E. T. *Winged Wonders: The Story of the Flying Wings*. Washington, D.C.: Smithsonian Institution Press, 1983.

#### *Department of Space Science and Exploration*

- DeVorkin, David H. "Stellar Evolution and the Origins of the Hertzsprung-Russell Diagram in Early Astrophysics." Chapter 6 in *Astrophysics and Twentieth-Century Astronomy to 1950*. (Volume 4 of the *General History of Astronomy*, M. A. Hoskin and O. Gingerich, eds.), New York, N.Y.: Cambridge University Press, 1984.
- . "The Supernova of A.D. 1006." *The Astronomy Quarterly* 17 (Summer 1984).
- . "The Harvard Summer School in Astronomy." *Physics Today* 37 (July 1984).
- DeVorkin, David H., and Kenat, Ralph. "Quantum Physics and the Stars (II): The Abundances of the Elements in the Atmospheres of the Sun and Stars." *Journal for the History of Astronomy* 14 (October 1983).
- Kennedy, Gregory P. "Reaping the Harvest: Post War V-2 Rocket Research in the United States." Essay for 1984 National Space Club Goddard Historical Essay contest.
- . "Jet Shoes and Rocket Packs." *Space World* (September 1984).
- . *Vengeance Weapon 2: The V-2 Guided Missile*. 1983. Reprint. Washington, D.C.: Smithsonian Institution Press, 1984.
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*Exploring Microspace*

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Marconi

*Master European Drawings from the Collection of the National Gallery of Ireland*

*The Precious Legacy: Judaic Treasures from the Czechoslovak State Collections* (4 posters)

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## PUBLIC SERVICE

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### OFFICE OF TELECOMMUNICATIONS

SMITHSONIAN GALAXY—104 two-and-one-half-minute radio features.

RADIO SMITHSONIAN—52 half-hour radio programs.

The partial listing of segments, which follows, contains material based on research done by Smithsonian curators or other personnel:

"Gravitational Images in Space" Images that demonstrate how light is bent by gravity from nearby galaxies are observed for the first time. (SAO) October 2, 1983.

- "Flight of the Monarchs" Scientists ponder the wanderings of Monarch butterflies on migrations covering thousands of miles from the United States to South America. (MNH) October 16, 1983.
- "An Appreciation of Orchids" Orchids are admired not only for their beauty, but also for their unique evolutionary abilities. (STRI) October 23, 1983.
- "Beach Bugs" Just when you thought it was safe to go back on the sand, out come the water bears, mud dragons and nematodes. (MNH) October 23, 1983.
- "Swing Time" An audio tour of America's big band era. (SI Press) November 27, 1983.
- "Ban Chiang" An exhibition at the Museum of Natural History reveals a lost bronze age rediscovered in northeastern Thailand. (MNH) December 4, 1983.
- "The Leonids Meteor Shower" Smithsonian astronomers recall history's greatest recorded shooting star spectacle. (NASM) December 11, 1983.
- "Tracks of the Stars" Participants in the First International Conference on Ethnoastronomy trace man's relationships with the sun, moon, planets and stars. (NASM) January 8, 1984.
- "Words On Birds" Smithsonian Secretary S. Dillon Ripley on the birds of India; Roger Tory Peterson on bird ecology in the U.S.A. (Secretary's Office) February 12, 1984.
- "Coping With Cold" Researchers at the National Zoo reveal the wintering strategies of bears, birds and other beasts. (NZZ) February 26, 1984.
- "Cosmic Super Structures" Smithsonian scientists explore the nature of gigantic galactic "superclusters" and massive "voids" in space. (SAO) March 5, 1984.
- "Sino-Soviet Science" Smithsonian botanist travels to Russia and China to establish scientific and cultural ties. (MNH) March 5, 1984.
- "Batting Around the Zoo" An examination of the ways and means of bats. (NZZ) April 8, 1984.
- "Aldabra Must Be Saved" An island in the Indian Ocean, the world's largest coral island and one of the last outposts of pristine wilderness, struggles for survival. (MNH) April 8, 1984.
- "Early Ellington" A Smithsonian researcher presents rare recordings of Duke Ellington. (MAH) May 27, 1984.
- "Star Spots" Astronomers at the Smithsonian Astrophysical Observatory track the activities of gigantic magnetic fields on distant stars in order to learn more about similar occurrences on the Sun. (SAO) June 24, 1984.
- "Tales Told in Bones" New chemical detection methods are revealing the dietary and social habits of ancient human cultures. (MNH) June 24, 1984.
- "Acid Rain" Smithsonian scientists offer some answers about the nature of acid rain. (CBES) July 1, 1984.
- "For the Love of the Skies" A new facility at the Smithsonian's Whipple Observatory in Arizona is dedicated to, and for, amateur astronomers. (SAO) July 29, 1984.
- "The Stuff Between the Stars" Research at the Smithsonian's Whipple Observatory in Arizona explores the interstellar medium, gamma ray photography, and the Multiple Mirror Telescope. (SAO) August 5, 1984.
- "The 1984 Festival of American Folklife" Highlights of this year's festival include Alaskan songs and customs and big-city sounds from Philadelphia. (OFF) August 12, 1984.
- "First Landing: The British Come to America" A festival in North Carolina, co-sponsored by the Smithsonian, celebrates the landing of the first English colonists and explorers to set foot in the New World. (Co-sponsored by SI) August 19, 1984.

- "Apollo's Legacy" Moon rocks brought back to earth by the Apollo astronauts have allowed scientists to determine the origin and make-up of the moon and meteorites. (SAO, NASM) September 2, 1984.
- "One Million Mosquitos" The Smithsonian's mosquito collection, with more than half the world's species represented, is an invaluable aid for scientists studying insects and diseases. (MNH) September 23, 1984.
- "The World's Biggest Tenderfoot" Little-known elephant facts and lore are revealed along with a look at attempts to preserve endangered elephant species. (NZP) September 30, 1984.

HERE AT THE SMITHSONIAN . . .—20 two-minute TV features.

This partial listing contains material based on research done by Smithsonian curators or other personnel:

- "Keeping Perfect Time" Smithsonian scientists build the hydrogen maser clock, the stablest chronometer ever made. (SAO) February 21, 1984.
- "Nature Through a Viewfinder" Nature photographer Kjell Sandved travels the world with Smithsonian scientists, his photographs adding a new dimension to their research. (MNH) February 21, 1984.
- "Surgery is Painless" A tribute to the TV series M\*A\*S\*H complete with its operating room set. "Pain and its Relief," exploring the development of anesthesia in surgery. (MAH) February 21, 1984.
- "Islam In Africa" An exhibition at the National Museum of African Art explores the blending of Islamic and African cultures in the art of Africa. (AFA) February 21, 1984.
- "Big Ideas in Small Packages" A look at 19th-century patent models—from Bell's telephone and Morse's telegraph to the "newest and best" ironing boards and sewing machines. (MAH) April 23, 1984.
- "The 20,000-Year-Old Man" A renowned anthropologist and his young assistant piece together a human skeleton from Egypt. (MNH) April 23, 1984.
- "Microscopes Make It Big" A special exhibition now lets the public see the latest microscopes in action. (MNH) April 23, 1984.
- "The Plastic Historian" A look at the works of the celebrated sculptor Jo Davidson. (NPG) April 23, 1984.
- "More Than Whistler's Mother" A major exhibition on the work of American-born artist James McNeil Whistler reveals there was much more to his art. (FGA) June 26, 1984.
- "Collecting The 'Stuff' Of Politics" Smithsonian visitors can see some of the 30,000 banners, buttons, and political paraphernalia collected from nearly every campaign since George Washington's time. (MAH) June 26, 1984.
- "The Golden Age of Aviation" Aviation and pioneers like General Jimmy Doolittle and Jimmy Mattern gather to reminisce about the "golden age" of aviation. (NASM) June 26, 1984.
- "Celebrating American Folklife" The sights and sounds of the Smithsonian's annual Festival of American Folklife—from Alaskans panning for gold to the dances of black Philadelphians. (OFP) August 30, 1984.
- "Eyes On The Universe" The revolutionary six-mirror design of the Multiple Mirror Telescope has just been recommended for an even bigger national telescope to be built later this century. (SAO) August 30, 1984.
- "Strike Up The Band" The Smithsonian's newest addition is a 19th-century bandstand, bringing the pleasures of old-fashioned brass bands back to the National Mall. (MAH) August 30, 1984.
- "An Ancient Game Reborn" The game mankala is one of the world's oldest, and it's now experiencing a new surge of popularity. (AFA) August 30, 1984.

"Past Visions of the Future" A compilation of ideas and paraphernalia showing how Americans have viewed the future. (SITES) August 30, 1984.

#### FILM AND VIDEO PRODUCTIONS

This listing contains material based on research done by Smithsonian curators or other personnel:

*Lou Stovall*—14½ minutes. A look at how the artist creates his unusual silk-screen prints. (ANM) October 1983.

*Smithsonian Orientation*—4½ minutes. A brief overview of Smithsonian museums for prospective visitors. (VIARC) March 1984.

*The Work of Peace*—30 minutes. A chronicle of the significant events surrounding the signing of the 1783 Treaty of Paris. (MAH, NPG) June 1984.

*An Introduction to the Museum Support Center*—10 minutes. A behind-the-scenes tour of this model facility. (MSC) June 1984.

*Yesterday's Tomorrows: Visions of the Future on Film*—18 minutes. A compilation of key scenes from futuristic and scientific films from 1902 to 1982. (SITES) August 1984.

*The Sea: A Quest For Our Future*—60 minutes. A documentary of the complex ecosystems of tropical coral reefs. (MNH) September 1984.

## MEMBERSHIP AND DEVELOPMENT

### SMITHSONIAN RESIDENT ASSOCIATE PROGRAM

*The Smithsonian Associate*, monthly 32- to 52-page newsletter, Janet W. Solinger, publisher/executive editor, and Karen Sagstetter, editor.

#### Invitations

*An Evening of Art: Different Worlds, Different Eras*, November 1983.

*Treasures from the Shanghai Museum: 6,000 Years of Chinese Art*, August 1984.

## READING IS FUNDAMENTAL, INC.

*RIF Newsletter*. Published three times a year, the Newsletter reports on RIF activities nationwide. A technical assistance insert, addressing local projects' requests for information on how to motivate youngsters to read, is included in Newsletters sent to RIF projects. The Newsletter reaches 20,000 people throughout the United States and offshore territories.

*Books To Grow On: A Parent's Guide to Encouraging Young Readers*. A magazine for parents of children from infancy to age 11.

*The RIF Book of Ideas*. A series of booklets on fundraising, on how to select books for young people, and how to motivate children to read.

*I Want You*. A brochure to assist RIF projects in recruiting and training volunteers.

*Reading Is Fun: Tips for Parents of Children Age Birth to Eight Years*. Guidelines for parents on how to promote reading in the home.

*Profiles*. Descriptions of the publishers and distributors that serve RIF projects. The *Profiles* list special discounts and services offered by each supplier and are distributed annually to all projects.

## NATIONAL GALLERY OF ART

Ash, Nancy, "A Note on the Use of Magnesium Bicarbonate in Hydrogen Peroxide Solutions." *AIC Book and Paper Group Annual*, 2(1983).

- Backlund, Caroline H. [Foreword] *Art Research Methods and Resources. A Guide to Finding Art Information*. Dubuque: Kendal/Hunt, 1984. 2nd ed. revised and enlarged.
- Brown, David. *Leonardo's Last Supper: The Restoration*. Washington, D.C.: National Gallery of Art, 1983.
- , contributor. *Leonardo's Last Supper: Precedents and Reflections*. Washington, D.C.: National Gallery of Art, 1983.
- Chotner, Deborah, contributor. *The Orientalists: Delacroix to Matisse*. [Exhibition catalogue] Washington, D.C.: National Gallery of Art, 1984.
- Cikovsky, Nicolai, Jr. "Thomas Eakins: Strength of Mind." *Art and Antiques* (September 1984):76-9.
- , contributor. *The Orientalists: Delacroix to Matisse*. [Exhibition catalogue] Washington, D.C.: National Gallery of Art, 1984.
- Cowart, Jack. "Dale Chihuly: Cause & Effects." Catalogue essay in *Chihuly: A Decade of Glass*. Bellevue, Washington, 1984.
- DeGrazia, Diane. *Le Stampe dei Carracci*. Bologna: Alfa, 1984.
- . [Exhibition catalogue] *Correggio and His Legacy: Sixteenth Century Emilian Drawings*. Washington, D.C.: National Gallery of Art, 1984.
- , contributor. *Renaissance Drawings from the Ambrosiana*. Notre Dame, 1984.
- Denker, Eric. [Exhibition catalogue] Annotated bibliography and research for *Drawing Near, Whistler Etchings from the Zelman Collection*, by Ruth Fine. Los Angeles: Los Angeles County Museum of Art, June 1984.
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- . [Review] *Alice Neel. Choice* (February 1984):74.
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- Fine, Ruth. [Exhibition catalogue] *Drawing Near: Whistler Etchings from the Zelman Collection*. Los Angeles: Los Angeles County Museum of Art, 1984.
- Fletcher, Shelley. "Two Monotype-pastels by Degas at the National Gallery of Art." *Print Quantity*, I, no 1(March 1984):53-55.
- . "A Preliminary Study of the Use of Infrared Reflectography in the Examination of Works of Art on Paper." *ICOM* (September 1984).
- Freedberg, Sydney J. "Titian and Marsyas." *FMR* 50, no. 4(September 1984).
- , with Cox-Rearick, Janet. "A Pontormo (Partly) Recovered." *Burlington Magazine*.
- . "A Fugue of Styles: Roman Drawings of the Sixteenth Century." The Art Institute of Chicago Centennial Lectures.
- . "Raphael, Michelangelo and Others: Raphael and His Contemporaries in Rome." Vassar College.
- Graselli, Margaret, with Rosenberg, Pierre. *Watteau, 1684-1721*. Washington, D.C.: National Gallery of Art, 1984.
- Grier, Margot E. *Art Serials/National Gallery of Art*. Washington, D.C.: National Gallery of Art, 1983.
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- Hirschauer, Gretchen, contributor. *Leonardo's Last Supper: Precedents and Reflections*. Washington, D.C.: National Gallery of Art, 1983.

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- Luchs, Alison. "Demonet's: Architecture and Ice Cream on Connecticut Avenue." *Records of the Columbia Historical Society*, 51(1984):144-57.
- Mann, Donna. "American Naïve Paintings at the National Gallery of Art." *Antique Market*, 4, no. 6(June 1984):20-24.
- Price, Marla. "About Juan Gris." *The Washington Gallery/Museum News*, 1, no. 2(October 1983):3.
- Skalka, Michael, contributor. *Margaret Bourke-White: The Humanitarian Vision*. Syracuse: Joe and Emily Lowe Art Gallery, 1983.
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- . Photographs of papyrus manufacture in *Our Green and Living World*. Washington, D.C.: Smithsonian Institution, 1984.
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- , contributor. *Leonardo's Last Supper: Precedents and Reflection* [Exhibition catalogue] Washington, D.C.: National Gallery of Art, 1983.
- . [Review] *Haarlem: The Seventeenth Century* (exhibition held at Rutgers, The State University). *The Burlington Magazine*, CXXV (1983): 386.
- . *The Age of Rembrandt: Dutch Painting of the Seventeenth Century*. [Annotated slide presentation] Washington, D.C.: National Gallery of Art, 1983.
- , with Kaldenbach, C. J. "Vermeer's View of Delft and his Vision of Reality." *artibus et historiae*, 6(1982):9-36.
- Williams, William James. "The Introduction of Porcelain: The Medici Experiment." *Washington Antiques Show* [Catalogue], 1984:47.
- Wilmerding, John. *Audubon, Homer, Whistler and 19th-Century America*. (3rd edition) New York: Jupiter Art Library, 1984.
- . [Exhibition catalogue] *The Masters of America: Nineteenth-Century American Paintings of Rivers, Lakes and Waterfalls*. New Orleans, Louisiana: The Historic New Orleans Collection and New Orleans Museum of Art, 1984.
- Wolff, Martha, contributor. *Leonardo's Last Supper: Precedents and Reflections*. Washington, D.C.: National Gallery of Art, 1983.



APPENDIX 7. *The Smithsonian Institution and Its Subsidiaries,  
September 30, 1984*

OFFICE OF THE SECRETARY

<b>THE SECRETARY</b> .....	<b>ROBERT McCORMICK ADAMS</b> (Appointed 9/17/84) <b>S. DILLON RIPLEY</b> (Retired 9/17/84)
Executive Assistant .....	James M. Hobbins
Special Assistant .....	Joseph Coudon
Administrative Assistant (Appointments) .....	Mary Lee Nissley
Supervisor, Secretary's Files .....	Betty J. Edwards

OFFICE OF THE UNDER SECRETARY

<b>The Under Secretary</b> .....	<b>Phillip S. Hughes</b>
----------------------------------	--------------------------

OFFICE OF THE SPECIAL ASSISTANT  
TO THE SECRETARY

<b>Special Assistant to the Secretary</b> .....	<b>Richard H. Howland</b>
Curator, Smithsonian Institution Building .....	James M. Goode

OFFICE OF AUDITS

<b>Director</b> .....	<b>Chris S. Peratino</b>
Assistant Directors	
Internal Audits .....	Jerry L. Chandler
Internal Audits .....	John C. Fawsett
External Audits .....	Patrick J. Stanton
Policy Section .....	Benedict T. Maltagliati

*NATIONAL AIR AND SPACE MUSEUM*

<b>Director</b> .....	<b>Walter J. Boyne</b>
Deputy Director .....	Donald S. Lopez
Associate Director for External Affairs.	Brian Duff
Associate Director for Research .....	Paul A. Hanle
Administrative Officer .....	Wendy A. Stephens
Historian Emeritus .....	Paul E. Garber
Director, Advanced Projects .....	Hernan I. Otano
Museum Facilities Manager .....	Claude D. Russell
Chief, Records Management Division ..	Karl P. Suthard
Registrar .....	Robin A. Schroffel

Assistant Director for Resource Management .....	M. Antoinette Amos
Theater Manager .....	Ronald E. Wagaman
Chief, Public Affairs and Museum Services Division .....	Rita C. Cipalla
Special Events Coordinator .....	Marilyn E. Lyons
Chief, Office of Research Support .....	Kerry M. Joels
Docent and Tour Program Manager ..	Patricia E. Johnston
Chief, Special Projects and Publications Division .....	Helen C. McMahon
Editor .....	Patricia J. Graboske
Chairman, Department of Aeronautics ..	Edmund T. Wooldridge
Special Advisor for Technology .....	Howard S. Wolko
Senior Curator .....	Robert C. Mikesh
Curators .....	Tom D. Crouch
	R. E. G. Davies
	Von D. Hardesty
Associate Curators .....	Claudia M. Oakes
	Dominick A. Pisano
	C. Glen Sweeting
Assistant Curators .....	Jay P. Spenser
	Robert van der Linden
Chairman, Center for Earth and Planetary Studies .....	Ted A. Maxwell
Geologists .....	Patricia A. Jacobberger
	Priscilla L. Strain
Research Associate .....	Constance G. Andre
Chairman, Department of Space Science and Exploration .....	Paul A. Hanle
Curators .....	David H. DeVorkin
	Louis R. Purnell
Associate Curators .....	Gregory P. Kennedy
	Allan A. Needell
Research Historian .....	Frank H. Winter
Assistant Director for Exhibits and Production Operations .....	Edward B. Chalkley
Chief, Exhibits Division .....	Nadya A. Makovenyi
Chief, Design Unit .....	Lucius E. Lomax
Chief, Production and Coordination Unit .....	Harold J. Pippin
Chief, Audiovisual Unit .....	John E. Hartman
Chief, Spacearium Unit .....	James H. Sharp
Chief, Art Collection Unit .....	Mary H. Valdivia
Chief, Preservation and Restoration Operations .....	Walter R. Roderick
Supervisory Museum Specialist ...	Alfred J. Bachmeier

NATIONAL MUSEUM OF NATURAL HISTORY/  
NATIONAL MUSEUM OF MAN

Director .....	<b>Richard S. Fiske</b>
Associate Director .....	James F. Mello (Resigned 4/23/84)
Acting Assistant Director .....	Stanwyn G. Shetler (Appointed 4/23/84)

Special Assistant to the Director .....	Catherine J. Kerby
Special Assistant to the Director .....	Stanwyn G. Shetler (Appointed 1/1/84)
Special Assistant to the Associate Director .....	Jerome A. Conlon
Writer-Editor .....	Thomas R. Harney
Administrative Officer .....	Mary Rakow Tanner (Appointed 2/19/84)
Budget Analyst .....	Claretta B. Jackson-Niles (Retired 8/30/84)
Administrative Assistant .....	Noreen Dinndorf (Appointed 4/1/84)
Management Analyst .....	John C. Townsend, Jr.
Program Manager .....	Marsha Cox (Appointed 8/7/83)
Registrar .....	Margaret A. Santiago
Building Manager .....	Edward McCoy
Supervisory Information and Education Specialist .....	Joan C. Madden
Information Systems Manager, Automatic Data Processing Program .	T. Gary Gautier
Acting Chief, Office of Exhibits .....	Carl A. Alexander (Reassigned 3/2/84)
Assistant Director for Exhibits .....	Laurence P. O'Reilly (Appointed 3/4/84)
Supervisory Museum Specialist, Scanning Electron Microscope Laboratory .....	Walter R. Brown

#### *Anthropology*

Chairman .....	Douglas H. Ubelaker
Administrative Assistant .....	Clara Ann Simmons
Collections Manager .....	Priscilla Rachun Linn
Conservation Laboratory, Supervisor ...	Carolyn L. Rose
Illustrator, Supervisor .....	George R. Lewis
Public Information Specialist .....	Ann Kaupp (Appointed 4/2/84)

#### HANDBOOK OF NORTH AMERICAN INDIANS

General Editor .....	William C. Sturtevant
Managing Editor .....	Colin I. Busby (Resigned 11/1/83)
Production Manager .....	Diane Della-Loggia
Management Services Assistant .....	Melvina Jackson
Anthropologist .....	Johanna C. Scherer
Linguist .....	R. H. Ives Goddard, III
Librarian .....	Lorraine H. Jacoby

#### HUMAN STUDIES FILM ARCHIVES

Director .....	Herman J. Viola
Assistant Director .....	Barbara Johnson

#### NATIONAL ANTHROPOLOGICAL ARCHIVES

Director .....	Herman J. Viola
Assistant Director .....	James R. Glenn
Deputy Director .....	Paula Fleming

LATIN AMERICAN ANTHROPOLOGY

Curator ..... Robert M. Laughlin  
 Associate Curator ..... William H. Crocker  
 Expert ..... Betty J. Meggers

NORTH AMERICAN ANTHROPOLOGY

Curators ..... William W. Fitzhugh  
 Bruce D. Smith  
 Dennis J. Stanford  
 William C. Sturtevant  
 Associate Curator ..... William L. Merrill

OLD WORLD ANTHROPOLOGY

Curators ..... Adrienne Kaeppler  
 William B. Trousdale  
 Gus Van Beek  
 Associate Curators ..... Ivan Karp  
 (Appointed 12/13/83)  
 Paul Taylor

PHYSICAL ANTHROPOLOGY

Curators ..... J. Lawrence Angel  
 Donald J. Ortner  
 Douglas H. Ubelaker

LINGUISTICS

Curator ..... R. H. Ives Goddard, III

RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

James Adovasio (Archeology)	Richard T. Koritzer (Physical Anthropology)
John Albanese (Geology)	JoAnne Lanouette (Education)
Larry Banks (Archeology)	Paulina Ledergerber (Archeology)
Virginia L. Bavendam (Ethnology)	Mary McCutcheon (Anthropology)
Kathleen J. Bragdon (Linguistics)	David Meltzer (Archeology)
Sarah Brett-Smith (Ethnology)	Jerald T. Milanich (Archeology)
Alison S. Brooks (Archeology)	Stephen Potter (Archeology)
Ernest S. Burch, Jr. (Archeology)	Walter G. J. Putschar (Physical Anthropology)
Margaret Caldwell (Physical Anthropology)	Bruce D. Ragsdale (Pathology)
Henry B. Collins (Archeology)	Saul H. Riesenber (Ethnology)
John C. Ewers (Plains Ethnology)	Lucile E. St. Hoyme (Physical Anthropology)
Don D. Fowler (Archeology)	Robert G. Schmidt (Geology)
George Frison (Archeology)	Shirley J. Schwarz (Archeology)
Bruno Frohlich (Physical Anthropology)	Andrew Sillen (Physical Anthropology)
Gordon D. Gibson (Ethnology)	T. Dale Stewart (Physical Anthropology)
Kathleen Gordon (Physical Anthropology)	Jean Umiker-Sebeok (Linguistics)
James B. Griffin (Archaeology)	Paula C. Wapnish (Archeology)
Gary Haynes (Archeology)	Mildred M. Wedel (Archeology and Ethnohistory)
Brian Hesse (Zoo-Archaeology)	Waldo R. Wedel (Archeology)
Neil C. Hughes (Archeology)	Pamela J. Wintle (Film Archives)
Tirachai Kambhu na Ayutthaya (Ethnology)	Melinda Zeder (Archeology)
Bennie C. Keel (Archeology)	
Eugene Knez (Ethnology)	

## Botany

Chairman .....	Mark M. Littler
Administrative Assistant .....	Nella F. Lloyd
Collections Manager .....	George F. Russell
Senior Botanists .....	Edward S. Ayensu Richard S. Cowan Mason E. Hale, Jr.

## PHANEROGAMS

Curators .....	Dan H. Nicolson Robert W. Read Stanwyn G. Shetler Dieter C. Wasshausen John J. Wurdack
Associate Curators .....	Robert B. Faden Vicki A. Funk Marie-Hélène Sacht Laurence E. Skog

## FERNS

Associate Curator .....	David B. Lellinger
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## GRASSES

Curator .....	Thomas R. Soderstrom
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## CRYPTOGAMS

Curators .....	James N. Norris Harold E. Robinson
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## PALYNOLOGY

Curator .....	Joan W. Nowicke
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## PLANT ANATOMY

Curator .....	Richard H. Eyde
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## RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

Pamela Balough (Orchids)	Kittie F. Parker (Compositae)
Katina Bucher (Algae)	Duncan M. Porter (Phanerogams)
José Cuatrecasas (Flora of Tropical South America)	Muriel E. Poston (Loasaceae)
Paul E. Desautels (Orchids)	Clyde F. Reed (Phanerogams)
James A. Duke (Flora of Panama)	Amy Y. Rossman (Fungi)
F. Raymond Fosberg (Tropical Island Plants)	Velva E. Rudd (Leguminosae)
Aaron Goldberg (Phanerogams)	Edith E. B. Scott (Bryophyta)
Charles R. Gunn (Seeds)	Lyman B. Smith (Flora of Brazil)
LeRoy H. Harvey (Grasses)	Frans A. Stafleu (Phanerogams)
Mark Edward Hay (Marine Algae)	William L. Stern (Plant Anatomy)
Joseph H. Kirkbride, Jr. (Rubiaceae)	Phillip R. Taylor (Marine Botanical Ecology)
Elbert L. Little, Jr. (Dendrology)	Edward E. Terrell (Phanerogams)
Diane S. Littler (Marine Algae)	Egbert H. Walker (East Asian Flora)
Alicia Lourteig (Neotropical Botany)	

## Entomology

Chairman .....	Wayne N. Mathis
Collections Manager .....	Gary F. Hevel
Senior Scientist .....	Karl V. Krombein

NEUROPTEROIDS AND DIPTERA

Curators ..... Oliver S. Flint, Jr.  
Wayne N. Mathis

LEPIDOPTERA

Curators ..... John M. Burns  
Don R. Davis  
W. Donald Duckworth  
Robert K. Robbins

COLEOPTERA

Curators ..... Terry L. Erwin  
Paul J. Spangler

HEMIPTERA

Curator ..... Richard C. Froeschner

HYMENOPTERA

Senior Scientist ..... Karl V. Krombein  
Curator ..... Ronald J. McGinley  
(Appointed 1/9/83)

MYRIAPODA AND ARACHNIDA

Curator ..... Jonathan A. Coddington  
(Appointed 12/11/83)

RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

Joachim Adis (Coleoptera)	W. L. Jellison (Mites, Ticks)
Annette Aiello (Lepidoptera)	James E. Keirans (Ticks)
Donald W. Anderson (Coleoptera)	John M. Kingsolver (Coleoptera)
Edward W. Baker (Mites)	Lloyd Knutson (Diptera)
S. W. T. Batra (Hymenoptera)	James P. Kramer (Homoptera)
S. Franklin Blanton (Diptera)	Paul M. Marsh (Hymenoptera)
Barnard Burks (Hymenoptera)	Arnold S. Menke (Hymenoptera)
Robert W. Carlson (Hymenoptera)	Douglass R. Miller (Homoptera)
J. F. Gates Clarke (Lepidoptera)	Scott E. Miller (Microlepidoptera)
Carleton M. Clifford (Ticks)	Carl F. W. Muesebeck (Hymenoptera)
Margaret Collins (Orthoptera)	David F. Nickle (Orthoptera)
Jerry Coyne (Diptera)	Paul A. Opler (Lepidoptera)
Hilary Cruz (Insects of Sri Lanka)	David L. Pearson (Coleoptera)
K. C. Emerson (Mallophaga)	Robert V. Peterson (Diptera)
John H. Fales (Lepidoptera)	Kenelm W. Philip (Lepidoptera)
Douglas C. Ferguson (Lepidoptera)	Robert W. Poole (Noctuidae)
Richard H. Foote (Diptera)	George W. Rawson (Lepidoptera)
John G. Franclemont (Lepidoptera)	Mary Livingston Ripley (General Entomology)
Raymond J. Gagne (Diptera)	Louise M. Russell (Homoptera)
Robert D. Gordon (Coleoptera)	Curtis W. Sabrosky (Diptera)
E. Eric Grissell (Hymenoptera)	Jay C. Shaffer (Microlepidoptera)
Ashley B. Gurney (Orthoptera)	Sunthorn Sirivanakarn (Mosquitoes)
Ralph E. Harbach (Diptera)	Gordon B. Small, Jr. (Lepidoptera)
Thomas Henry (Hemiptera)	Robert L. Smiley (Mites)
John B. Heppner (Lepidoptera)	David R. Smith (Hymenoptera)
Jon L. Herring (Hemiptera)	Theodore J. Spilman (Coleoptera)
Ronald W. Hodges (Lepidoptera)	George C. Steyskal (Diptera)
Harry Hoogstraal (Medical Entomology)	

Manya B. Stoetzel (Homoptera)  
 F. Christian Thompson (Diptera)  
 Edward L. Todd (Lepidoptera)  
 Robert Traub (Siphonaptera)  
 Hayo H. W. Velthuis  
 (Hymenoptera)

Ronald A. Ward (Medical  
 Entomology)  
 Richard E. White (Coleoptera)  
 Donald R. Whitehead (Coleoptera)  
 Willis W. Wirth (Diptera)  
 David Wooldridge (Coleoptera)

*Invertebrate Zoology*

Chairman .....  
 Senior Zoologist .....  
 Collections Manager .....  
 Administrative Assistant .....

Clyde F. E. Roper  
 Horton H. Hobbs, Jr.  
 (Retired 3/31/84)  
 Roland H. Brown  
 Martha J. Vincellette

CRUSTACEA

Curators .....  
 Associate Curator .....

J. Laurens Barnard  
 Thomas E. Bowman  
 Roger F. Cressey  
 Charles W. Hart, Jr.  
 Robert P. Higgins  
 Louis S. Kornicker  
 Raymond B. Manning  
 Brian F. Kensley

ECHINODERMS

Curators .....

Frederick M. Bayer  
 David L. Pawson  
 Klaus Ruetzler

MOLLUSKS

Curators .....

Richard S. Houbrick  
 Clyde F. E. Roper  
 Joseph Rosewater

WORMS

Curators .....

Kristian Fauchald  
 W. Duane Hope  
 Meredith L. Jones  
 Mary E. Rice

REGISTRY OF TUMORS IN LOWER ANIMALS

Director .....  
 Microbiologist .....  
 Histotechnologic Specialist .....  
 Museum Specialist .....  
 Biological Research Assistant .....  
 Research Assistant .....

John Harshbarger  
 Sing Chen Chang  
 Linda Cullen  
 Phyllis Spero  
 Christine Louton  
 Marilyn Slatick

RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

S. Stillman Berry  
 (Deceased 5/84)  
 J. Bruce Bredin  
 Stephen D. Cairns  
 Fenner A. Chace, Jr.  
 (Emeritus Zoologist)  
 Steven Chambers

Stephen L. Gardiner  
 Horton H. Hobbs, Jr.  
 (Emeritus Zoologist)  
 Lipke B. Holthuis  
 Roman Kenk  
 J. Ralph Lichtenfels  
 Patsy McLaughlin

Charles G. Messing  
 Katherine Muzik  
 Isabel Perez-Farfante (Canet)  
 Richard E. Petit  
 Marian Pettibone  
 (Emeritus Zoologist)  
 Anthony J. Provenzano, Jr.

Harald A. Rehder  
 (Emeritus Zoologist)  
 I. G. Sohn  
 Ronald B. Toll  
 Geerart J. Vermeij  
 Gilbert L. Voss  
 Austin B. Williams  
 David K. Young

*Mineral Sciences*

Chairman .....  
 Administrator .....

Robert F. Fudali  
 Elizabeth E. Greene

METEORITES

Curators .....

Roy S. Clarke, Jr.  
 Brian H. Mason  
 (Retired 4/84)

Associate Curator .....  
 Geochemist .....

Glenn J. MacPherson  
 Kurt Fredriksson

MINERALOGY

Curator .....  
 Crystallographer .....  
 Associate Curator .....

John Sampson White  
 Daniel E. Appleman  
 Jeffrey Post  
 (Appointed 5/9/84)

PETROLOGY AND VOLCANOLOGY

Curators .....

Richard S. Fiske  
 William G. Melson  
 Tom Simkin  
 Sorena Sorensen  
 (Appointed 5/9/84)

Associate Curator .....

PHYSICAL SCIENCES LABORATORY

Chemists .....

Eugene Jarosewich  
 Joseph A. Nelen  
 James E. Collins

Electronics Technician .....

SCIENTIFIC EVENT ALERT NETWORK

Museum Specialist .....  
 Museum Technician .....

Lindsay R. McClelland  
 Janet Crampton  
 Elizabeth Nielsen

RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

Vagn F. Buchwald (Meteorites)  
 William C. Buell IV (Volcanology)  
 Cathy Busby-Spera (Petrology)  
 Gary R. Byerly (Petrology)  
 Felix Chayes (Petrology and  
 Volcanology)  
 Suzanne P. DeAtley (Petrology and  
 Volcanology)  
 Robert T. Dodd (Meteorites)  
 John Filson (Petrology and Volcanology)  
 Michael Fleischer (Mineralogy)

Martin Flower (Petrology and  
 Volcanology)  
 Edward Henderson (Meteorites)  
 Peter Leavens (Mineralogy)  
 Paul B. Moore (Mineralogy)  
 Debra S. Stakes (Petrology and  
 Volcanology)  
 Geoffrey Thompson (Petrology and  
 Volcanology)  
 Othmar T. Tobisch (Petrology and  
 Volcanology)



*Paleobiology*

Chairman .....	Ian G. Macintyre
Curators Emeritus .....	G. Arthur Cooper C. Lewis Gazin
Collections Manager .....	Frederick J. Collier
Administrative Assistant .....	Betty M. Lomax
Deputy Collections Manager .....	Jann W. M. Thompson
Scientific Illustrator .....	Mary A. Parrish (Appointed 10/31/83) Lawrence B. Isham (Retired 10/3/83)
Vertebrate Paleontology Preparation Laboratory, Supervisor .....	Arnold D. Lewis
Senior Scientists .....	Richard E. Grant Porter M. Kier
Senior Scientist and Geological Oceanographer .....	Daniel J. Stanley
Geologists .....	Ian G. Macintyre James F. Mello (Appointed 4/23/84) Kenneth M. Towe
Curators .....	Walter H. Adey Richard H. Benson Richard S. Boardman Martin A. Buzas Alan H. Cheetham Richard Cifelli (Deceased 5/21/84) Robert J. Emry Nicholas Hotton III Francis M. Hueber Jack W. Pierce Clayton E. Ray Thomas R. Waller
Associate Curator .....	Anna K. Behrensmeyer

RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

Raymond L. Bernor	Bruce N. Haugh
Arthur J. Boucot	Leo J. Hickey
Sankar Chatterjee	S. Taseer Hussain
Anthony G. Coates	Ralph W. Imlay
Josephine W. Cooper	Jeremy B. C. Jackson
Steven J. Culver	Gilbert Kelling
Daryl P. Domning	Zofia Kielan-Jaworowska
Raymond C. Douglass	Carl F. Koch
J. Thomas Dutro, Jr.	N. Gary Lane
Ralph E. Eshelman	Kenneth E. Lohman
Jerzy A. Federowski	Venka V. Macintyre
Robert M. Finks	Sergius H. Mamay
Frank A. Garcia	Robert B. Neuman
Mackenzie Gordon, Jr.	William A. Oliver, Jr.
Richard Graus	Thomas F. Phelen
Peter J. Harmatuk	John Pojeta, Jr.
Jessica A. Harrison	Roy H. Reinhart

Charles A. Repenning  
 Bruce Runnegar  
 William J. Sando  
 Judith Schneider  
 Vincent P. Schneider  
 R. Craig Shipp  
 Frederick J. Siegel  
 Elwyn L. Simons  
 Judith Skog  
 Roberta K. Smith-Everenden  
 Norman F. Sohl  
 I. Gregory Sohn

Donald Spoon  
 George D. Stanley, Jr.  
 Steven M. Stanley  
 Robert S. Steneck  
 Margaret Ruth Todd  
 (Deceased 8/19/84)  
 Ronald R. West  
 Frank C. Whitmore, Jr.  
 Druid Wilson  
 Ellis P. Yochelson  
 Rinaldo Zinardi

*Vertebrate Zoology*

Chairman .....  
 Collections Manager .....  
 Administrative Assistant .....

W. Ronald Heyer  
 J. Phillip Angle  
 Anna L. Datcher

FISHES

Curators .....  
 Associate Curator .....

Robert H. Gibbs, Jr.  
 Victor G. Springer  
 Stanley H. Weitzman  
 G. David Johnson  
 (Appointed 10/24/83)  
 Richard P. Vari

AMPHIBIANS AND REPTILES

Curators .....

W. Ronald Heyer  
 George R. Zug

BIRDS

Curators .....

Storrs L. Olson  
 George E. Watson  
 Richard L. Zusi

MAMMALS

Curators .....  
 Associate Curator .....

Charles O. Handley, Jr.  
 James G. Mead  
 Richard W. Thorington, Jr.  
 Michael D. Carleton

SECRETARY'S RESEARCH LABORATORY

Administrative Specialist .....  
 Museum Specialist .....

Adele Y. Issa  
 Bruce M. Beehler

RESEARCH ASSOCIATES, COLLABORATORS, AND AFFILIATED SCIENTISTS

John W. Aldrich (Birds)  
 John S. Ash (Birds)  
 Richard C. Banks (Birds)  
 John C. Barber (Birds)  
 William Belton (Birds)  
 Gregory D. Bentz (Birds)  
 Michael A. Bogan (Mammals)  
 Heraldo Britski (Fishes)  
 Eleanor D. Brown (Birds)

Robert L. Brownell (Mammals)  
 Daniel M. Cohen (Fishes)  
 Bruce B. Collette (Fishes)  
 C. Kenneth Dodd, Jr. (Amphibians  
 and Reptiles)  
 Louise H. Emmons (Mammals)  
 Robert K. Enders (Mammals)  
 Carl H. Ernst (Amphibians and  
 Reptiles)

Alan Feduccia (Birds)	Lynne R. Parenti (Fishes)
Sara V. Fink (Fishes)	William F. Perrin (Mammals)
William L. Fink (Fishes)	Allan R. Phillips (Birds)
Mercedes S. Foster (Birds)	Ronald H. Pine (Mammals)
Herbert Friedmann (Birds)	Gregory K. Pregill (Amphibians and Reptiles)
Thomas H. Fritts (Amphibians and Reptiles)	John E. Randall (Fishes)
Jeffery Froehlich (Mammals)	G. Carleton Ray (Mammals)
Alfred L. Gardner (Mammals)	Randall R. Reeves (Mammals)
Michael Goulding (Fishes)	S. Dillon Ripley (Birds)
Martha B. Hays (Birds)	C. Brian Robbins (Mammals)
Richard Highton (Amphibians and Reptiles)	Alan H. Savitzky (Amphibians and Reptiles)
George J. Jacobs (Amphibians and Reptiles)	Albert Schwartz (Amphibians and Reptiles)
Frances C. James (Birds)	Norman J. Scott, Jr. (Amphibians and Reptiles)
Clyde J. Jones (Mammals)	William F. Smith-Vaniz (Fishes)
Warren B. King (Birds)	David W. Steadman (Birds)
Gordon L. Kirkland (Mammals)	Kenneth J. Sulak (Fishes)
Irving L. Kornfield (Fishes)	Stephen G. Tilley (Amphibians and Reptiles)
William H. Krueger (Fishes)	James C. Tyler (Fishes)
Roxie C. Laybourne (Birds)	Richard J. Wassersug (Amphibians and Reptiles)
John M. Legler (Amphibians and Reptiles)	Marilyn Weitzman (Fishes)
Roy W. McDiarmid (Amphibians and Reptiles)	John S. Weske (Birds)
Francisco Mago-Leccia (Fishes)	Ralph M. Wetzel (Mammals)
Joe T. Marshall (Birds)	Claudia F. Wilds (Birds)
Linda R. Maxson (Amphibians and Reptiles)	E. O. Wiley (Fishes)
Naercio Menezes (Fishes)	James D. Williams (Fishes)
Joseph C. Mitchell (Amphibians and Reptiles)	Don E. Wilson (Mammals)
Ralph S. Palmer (Birds)	David B. Wingate (Birds)

*Smithsonian Oceanographic Sorting Center*

Director .....	Leslie W. Knapp
Administrative Assistant .....	Patricia Buckley
Marine Biologists .....	Frank D. Ferrari
	Gordon L. Hendler
	Betty Landrum
	Ernani Menez

*Smithsonian Marine Station at Link Port*

Administrative Officer .....	June J. Jones
Scientist in Charge .....	Mary E. Rice
Research Assistants .....	William D. Lee
	Sherry Anne Petry
	Julianne Piraino
	Hugh F. Reichardt

**MUSEUM SUPPORT CENTER**

Director .....	U. Vincent Wilcox
Administrative Assistant .....	Patti B. Young

Collections Coordinator .....	Wendy C. Jessup
Data Manager .....	Joan B. Andrews
Shipping Officer .....	Mary L. Sheridan
Facility Manager .....	Charles E. Dunn

*NATIONAL ZOOLOGICAL PARK*

<b>Director</b> .....	<b>Michael H. Robinson</b> (Appointed 5/21/84)
Senior Advisory for Animal Programs.	Theodore H. Reed (Retired 7/3/84)
Assistant Director for Support Services.	Gaetano G. Calise, Jr.
Assistant Director for Research and Educational Activities .....	Devra G. Kleiman (Appointed 7/12/84)
Assistant Director for Conservation and Captive Breeding Programs .....	Christen M. Wemmer (Appointed 7/12/84)
Special Assistant to the Director .....	Robert J. Hoage
Registrar, Animal Programs .....	Judith Block
Chief, Office of Management Services ..	Vincent J. Doyle
Chief, Office of Education .....	Judith White

*Department of Herpetology*

Curator .....	Dale L. Marcellini
---------------	--------------------

*Department of Mammalogy*

Curator .....	Edwin Gould
Research Primatologist .....	Benjamin Beck

*Department of Ornithology*

Curator .....	Scott Derrickson (Appointed 7/12/84)
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*Department of Zoological Research*

Scientist-in-Charge .....	Devra R. Kleiman
Scientific Staff .....	Eugene S. Morton
	Katherine S. Ralls
	Miles Roberts

**RESEARCH ASSOCIATES AND AFFILIATED SCIENTISTS  
(ZOOLOGICAL RESEARCH):**

Associate in Ecology .....	S. Dillon Ripley
Collaborators .....	James G. Hallett
Adelmar Coinbra-Filho	Susan Lumpkin
Priya Davidar	Charles McDougal
Wolfgang Dittus	Jeffrey A. McNeely
John F. Eisenberg	Nancy Muckenhirn
Richard Estes	Douglas Richards
Richard Faust	John Robinson
John Frazier	Rasanayagam Rudran
Theodore Grand	Kenhelm W. Scott
Kenneth M. Green	Melvin Sunquist
Russell G. Greenberg	Susan Wilson

*Department of Animal Health*

Veterinarian-in-Charge .....	R. Mitchell Bush
Associate Veterinarian .....	Lyndsay Phillips, Jr.
Animal Physiologist .....	David Wildt
Research Associates .....	Michael D. Abramowitz
	Prabir Chakraborty
	Beverly Gilroy
Collaborators .....	Richard Alsaker
Max J. Appel	Bill Lasley
Glen Boch	Douglas W. McKay
Kenneth C. Bovée	Stephen J. O'Brien
Art Clexton	Carroll Platz
M. Kathryn Hammock	Barry Potter
A. Everette James, Jr.	Edward Ruley
John Knight	U. S. Seal
Seth A. Koch	Patricia Schmidt

*Department of Pathology*

Pathologist-in-Charge .....	Richard J. Montali
Research Associates .....	George P. Allen
Richard Alsaker	Charles Shoem
Max J. G. Appel	Bruce Smith
Chris Gardiner	John Strandberg
Ted L. Hatfield	Bernard Zook
Robert B. Shillinger	

*Department of Conservation, Front Royal, Virginia*

Curator-in-Charge .....	Christen M. Wemmer
Research Associates .....	Joel Berger
Richard Estes	Hemanta Mishra
Charles McDougal	Rodney Jackson
Facility Manager .....	John N. Williams
Office of Support Services	
Office of Construction Management	
Chief .....	Donald Muddiman
Office of Graphics and Exhibits	
Chief .....	Robert E. Mulcahy
Office of Facilities Management	
Chief .....	Emanuel Petrella
Office of Police, Safety, & Health	
Chief .....	Samuel L. Middleton, Jr.
Friends of the National Zoo	
Executive Director .....	Sabin Robbins

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Assistant Director .....	Roberta W. Rubinoff
Administrative Officer .....	Catherine F. Harris
Grants Program Manager .....	Francine C. Berkowitz
Grants Program Assistant .....	Jacki T. Rand
Academic Network Coordinator .....	Magali M. Carrera
Acting Academic Programs Specialist ..	Mary Estelle Kennelly
Academic Programs Assistant .....	Jennifer Cutting
Records Manager .....	Grace Murphy

SMITHSONIAN ASTROPHYSICAL OBSERVATORY

**Director** ..... **Irwin Shapiro**

Eugene H. Avrett	Daniel E. Harris	John C. Raymond
Robert W. Babcock	Lee W. Hartmann	Robert D. Reasenberg
Sallie L. Baliunas	John P. Huchra	Mark J. Reid
William P. Blair	Christine Jones	Thinniam N. Rengarajan
Nathaniel P. Carleton	Kenneth Kalata	George B. Rybicki
Federic H. Chaffee, Jr.	Wolfgang Kalkofen	Rudolph E. Schild
Kelly Chance	Scott J. Kenyon	Daniel A. Schwartz
John F. Chandler	Kate Kirby	Joseph Schwarz
John H. Chappell	Frederick K. Knight	Frederick D. Seward
Allan F. Cook, II	David G. Koch	Michael Shao
Alexander Dalgarno	John L. Kohl	Jack W. Slowey
Robert J. Davis	Michael J. Kurtz	Graeme Smith
Andrea K. Dupree	Robert L. Kurucz	Robert Stachnik
Martin Elvis	Victor H. S. Kwong	Steven W. Stahler
Giuseppina Fabbiano	Gregory P. Lafyatis	Robert P. Stefanik
Daniel G. Fabricant	Donald Q. Lamb, Jr.	Harvey D. Tananbaum
Giovanni G. Fazio	David W. Latham	Jose Torrelles
George B. Field	Myron Lecar	Wesley A. Traub
Edward L. Fireman	Alan P. Lightman	Ginevra Trinchieri
William Forman	Enrico Lorenzini	Wallace H. Tucker
Jane L. Fox	Tommaso Maccacaro	Giuseppe S. Vaiana
Fred A. Franklin	Richard E. McCrosky	Leon P. van Speybroeck
Larry D. Gardner	Brian G. Marsden	Robert F. C. Vessot
John C. Geary	Ursula B. Marvin	George A. Victor
Margaret J. Geller	Edward M. Mattison	Trevor C. Weekes
Owen Gingerich	Charles W. Maxson	Shen Wei
Isabella M. Gioia	Gary J. Melnick	Barbara L. Welther
Zachary M. Goldberg	James M. Moran, Jr.	Fred L. Whipple
Evelyn Goldfield	Stephen S. Murray	Charles A. Whitney
Leon Golub	Philip C. Myers	Belinda Wilkes
Paul Gorenstein	Peter Nisenson	Steven P. Willner
Margaret M. Graff	Robert W. Noyes	George L. Withbroe
Mario D. Grossi	Costas Papaliolios	John A. Wood
Steven L. Guberman	William H. Parkinson	Kouichi Yoshino
Gordon E. Gullahorn	Michael R. Pearlman	Zhai Zao-Cheng
Alan H. Guth	Francis A. Primini	Xing-Wu Zheng
Shadia Rifai Habbal	Harrison E. Radford	Martin V. Zombeck
F. R. Harnden, Jr.	Harvey Rarback	

SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER

<b>Director</b> .....	<b>William H. Klein</b>
<b>Assistant Directors</b> .....	David L. Correll
	Walter Shropshire, Jr.
<b>Executive Officer</b> .....	Carolyn M. Walker
<b>Administrative Officers</b> .....	Joseph C. Fisher
	Donald L. Wilhelm
	Robert N. Davis
<b>Facilities Manager</b> .....	
<b>Programs Assistants for Public Information</b> .....	Linda Chick
	Judy Collins
<b>Agricultural Engineer</b> .....	John Sager
<b>Anthropologist</b> .....	Robert Stuckenrath
<b>Biochemist</b> .....	Maurice Margulies

Biologist .....	Elisabeth Gantt
Geneticist .....	Roy W. Harding, Jr.
Microbiologist .....	Maria A. Faust
Physicist .....	Bernard Goldberg
Plant Ecologist .....	Dennis F. Whigham
Plant Physiologists .....	Charles F. Cleland
	Gerald Deitzer
	Bert G. Drake
	William O. Smith
Zoologists .....	Anson H. Hines
	James F. Lynch
<i>Affiliated Scientists</i>	
Biochemist .....	Barbara Chereskin
Ecologists .....	Thomas E. Jordan
	Timothy Spira
	Lisa Wagner
	Jacob Weiner
Modelers .....	Henry McKellar
	Donald Weller
Mycologist .....	Elizabeth Moore-Landecker
Plant Biologist .....	Israel Levy
Plant Physiologists .....	M. G. Holmes
	Kyotoshi Takeno-Wada
	Laura Thompson
Zoologist .....	Romuald Lipcius
<i>Visiting Scientists</i>	
Biologist .....	David S. Dennison (Dartmouth)
Biophysicist .....	Danuta Frackowiak (Poland)
Plant Physiologist .....	Yosi Ben-Tal (Israel, Hebrew University)
Visiting Student .....	Michael J. Krones (University of Maryland)
Interns .....	Linda Jones
	Sahle Melles
Work/Learn Students .....	Cynthia Campisano
David Cramer	Elizabeth Farnsworth
Craig Kelly	Devin Reese
Christine Ross	Lynn Sagramoso
Anatol Sucher	Mark Tedesco

SMITHSONIAN OFFICE OF EDUCATIONAL RESEARCH

<b>Director</b> .....	<b>John H. Falk</b>
Administrative Assistant .....	Mary Mangone
Senior Research Psychologist .....	John D. Balling
Research Psychologist .....	Deborah D. Hilke

SMITHSONIAN TROPICAL RESEARCH INSTITUTE

<b>Director</b> .....	<b>Ira Rubinoff</b>
Deputy Director .....	Michael H. Robinson (Resigned 5/19/84)
	James R. Karr (Appointed 8/19/84)

Special Assistant to Director .....	Adela Gomez (Retired 1/1/84)
Program Specialist .....	Elena Lombardo
Senior Scientist .....	Martin Moynihan
Executive Officer .....	Franklin Morris
Superintendent, Barro Colorado Nature Monument .....	Gilberto Ocaña
Facilities Manager .....	Ramon Ely
Educational Coordinator .....	Georgina de Alba
Budget Analyst .....	Carmen Sucre

### *Scientific Staff*

John H. Christy	Nancy Knowlton	David W. Roubik
Richard G. Cooke	Egbert G. Leigh, Jr.	Alan P. Smith
John Cubit	Harilaos A. Lessios	Neal G. Smith
Robert L. Dressler	Olga F. Linares	Nicholas Smythe
William G. Eberhard	G. Gene Montgomery	Mary Jane West-Eberhard
Peter W. Glynn	A. Stanley Rand	Donald M. Windsor
Stephen P. Hubbell	D. Ross Robertson	Hindrik Wolda
Jeremy J. C. Jackson	Arcadio F. Rodaniche	S. Joseph Wright

### RESEARCH ASSOCIATES

Annette Aiello	Robin Foster	Anthony Ranere
Robin Andrews	Nathan Gale	Michael Ryan
Carlos Arellano	Pedro Galindo	Myra Shulman
Charles Bennett, Jr.	Judy Gradwohl	Gordon B. Small
Nicholas Brokaw	Jeffrey B. Graham	W. John Smith
Gordon M. Burghardt	Leslie Johnson	Frank G. Stiles
Terry E. Christenson	Ross Kiester	Henry Stockwell
Mireya Correa	Yael Lubin	Katherine Troyer
Luis D'Croz	Ernst Mayr	Paulo E. Vanzolini
Kerry Ann Dressler	Jorge Motta	Fritz Vollrath

### HISTORY AND ART

Assistant Secretary .....	<b>John E. Reinhardt</b>
Special Assistants .....	Dean Anderson
	Beverly Lang
Administrative Officer .....	Patricia DuVall

### ANACOSTIA NEIGHBORHOOD MUSEUM

Director .....	<b>John R. Kinard</b>
Administrative Officer .....	Audrey M. Archer
Historian .....	Louise Daniel Hutchinson
Exhibits Program Manager .....	Vacant
Education Specialist .....	Zora Martin Felton
Supervisory Visual Information Specialist .....	Sharon A. Reinckens
Supervisory Exhibits Specialist .....	James E. Mayo
Photographer .....	Christopher Capilongo



ARCHIVES OF AMERICAN ART

Washington Headquarters Offices

<b>Director</b> .....	<b>Richard N. Murray</b>
Senior Curator .....	Garnett McCoy
Curator of Manuscripts .....	Arthur Breton
Collections Manager .....	Judy E. Throm
Area Collector .....	Liza Kirwin
Administrative Officer .....	Sherrill Berger

New York Headquarters Office

Deputy Director .....	Susan A. Hamilton
Development Officer .....	Ilene Rubin
Administrative Assistant .....	Larry Clark

Midwest Regional Center

Regional Director .....	Sue Ann Kendall
-------------------------	-----------------

New York Regional Center

Regional Director .....	William McNaught
-------------------------	------------------

New England Regional Center

Regional Director .....	Robert Brown
-------------------------	--------------

West Coast Regional Center

Regional Director .....	Paul Karlstrom
-------------------------	----------------

SOUTHERN CALIFORNIA RESEARCH CENTER

Area Collector .....	Stella Paul
----------------------	-------------

CENTER FOR ASIAN ART

FREER GALLERY OF ART and the  
ARTHUR M. SACKLER GALLERY OF ART

<b>Director</b> .....	<b>Thomas Lawton</b>
Assistant Director, Freer Gallery .....	Richard Louie
Assistant Director, Sackler Gallery .....	Milo C. Beach
Administrative Officer .....	Sarah Newmeyer-Hill
Curator, Chinese Art .....	Shen C. Y. Fu
Curator, Japanese Art .....	Yoshiaki Shimizu
Assistant Curator, Japanese Art .....	Ann Yonemura
Coordinator of Special Programs .....	Esin Atil
Head Conservator, Technical Laboratory .....	W. Thomas Chase III
Conservation Scientist .....	John Winter
Conservator .....	Paul Jett
Head Conservation Specialist .....	Ryo Nishiumi
Conservation Specialist .....	Yoshiyuki Nishio
Museum Specialist (Ceramics) .....	Louise A. Cort
Museum Specialist (Ceramics) .....	Josephine H. Knapp
Librarian .....	Ellen A. Nollman
Assistant Librarian .....	Lily Chia-Jen Kecskes
Registrar .....	Eleanor Radcliffe
Registrarial Specialist .....	Harriet McWilliams
Docent Coordinator .....	Gayle Southworth
Honorary Associates .....	Richard Edwards Calvin French

COOPER-HEWITT MUSEUM

<b>Director</b> .....	<b>Lisa Taylor</b>
Assistant Director .....	Harold Francis Pfister
Administrator .....	Linda Dunne
Administrative Assistant to Director ...	George King
Administrative Assistant to Assistant Director .....	William Gaske
Business Office Manager .....	Elizabeth McKirdie
Curator of Drawings and Prints .....	Elaine Evans Dee
Curator of Decorative Arts .....	David Revere McFadden
Curator of Textiles .....	Milton Sunday
Textiles Assistant .....	Gillian Moss
Librarian .....	Kathy Martinez
Conservator, Textiles .....	Lucy Commoner
Conservator, Paper .....	Konstanze Bachmann
Registrar .....	Cordelia Rose
Editor .....	Nancy Akre
Exhibition Coordinator .....	Dorothy Globus
Exhibition Designer .....	Robin Parkinson
Exhibition Researcher .....	Lucy Fellowes
Public Information Manager .....	Isabelle Silverman
Development Manager .....	Eileen White
Special Events Coordinator .....	Chauncie McKeever
Program Coordinator .....	Susan Yelavich
Education Specialist .....	Andrew Svedlow
Chief of Security .....	Luis Palau
Building Manager .....	Jim Ledford
Building Foreman .....	Ben Feudi

HIRSHHORN MUSEUM AND SCULPTURE GARDEN

<b>Director</b> .....	<b>Abram Lerner</b>
Deputy Director .....	Stephen E. Weil
Executive Officer .....	Nancy F. Kirkpatrick
Chief Curator .....	Charles W. Millard
Curator of Exhibitions .....	Cynthia J. McCabe
Associate Curators .....	Valerie Fletcher
	Howard N. Fox
	Frank B. Gettings
	Phyllis Rosenzweig
	Judith Zilczer
Librarian .....	Anna Brooke
Chief Conservator .....	Felrath Hines
	(Retired July 31, 1984)
Conservators .....	Leland Aks
	Clarke Bedford
	Susan Lake
	Antoinette Owen
Registrar .....	Douglas Robinson
Chief, Education .....	Edward Lawson
Chief, Exhibits and Design .....	Joseph Shannon
Public Information Specialist .....	Sidney Lawrence
Photographer .....	Lee Stalworth
Building Services Coordinator .....	Frank Underwood

*JOSEPH HENRY PAPERS*

<b>Editor</b> .....	<b>Nathan Reingold</b>
Associate Editor .....	Marc Rothenberg
Assistant Editors .....	Kathleen W. Dorman
	Paul Theerman
Administrative Officer .....	Beverly Jo Lepley

*NATIONAL MUSEUM OF AFRICAN ART*

<b>Director</b> .....	<b>Sylvia H. Williams</b>
Associate Director for Collections and Research .....	Roy Sieber
Assistant Director .....	Jean Salan
Founding Director Emeritus .....	Warren Robbins
Curators .....	Lydia Puccinelli
	Roslyn Walker
Assistant Curator/Archives Assistant ..	Bryna Freyer
Public Information Officer .....	Margaret Bertin
Curator of Education .....	Edward Lifschitz
Operations Manager .....	Basil Arendse
Registrar .....	Lee Williams
Conservator .....	Renee Welfeld
Docent/Intern Coordinator .....	Gretchen Jennings

*NATIONAL MUSEUM OF AMERICAN ART*

<b>Director</b> .....	<b>Charles C. Eldredge</b>
Assistant Director, Chief Curator .....	Elizabeth Broun
Assistant Director, Programs .....	Barbara Shissler Nosanow
Assistant Director, Resources .....	Charles J. Robertson
Assistant to the Director .....	Julie Schimmel
Administrator .....	Sherwood A. Dowling
Senior Curatorial Advisor .....	Adelyn Breeskin
Director, Renwick Gallery .....	Lloyd Herman
Curator, Renwick Gallery .....	Michael Monroe
Curator, Research .....	Lois M. Fink
Curator, Barney Studio House .....	Jean Lewton
Curators, Painting and Sculpture .....	Virginia Mecklenburg
	Harry Rand
	William H. Truettner
Associate Curator, Painting and Sculpture .....	Robin Bolton-Smith
Curator, Graphic Arts .....	Janet Flint
Associate Curators, Graphic Arts .....	Merry Foresta
	Martina Norelli
Assistant Curator, Joseph Cornell Study Center .....	Lynda Roscoe Hartigan
Deputy Assistant Director for Museum Programs .....	Judith O'Sullivan
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Chief, Design Unit, Office of Design and Production .....	Val Lewton
Chief, Office of Intern Programs .....	Patricia H. Chieffo
Chief, Office of Public Affairs .....	Margery Byers
Chief, Office of Research Support .....	Eleanor Fink

Assistant Chief, Office of Research Support .....	Rachel Allen
Chief, Office of Special Programs .....	Margaret P. Cogswell
Senior Conservator .....	Stefano Scafetta
Editor, Office of Publications .....	Carroll S. Clark
Registrar .....	W. Robert Johnston
Producer, Art Documentaries .....	Alison Abelson
Head of Docents and Volunteer Services .....	Nora Panzer
Chief Photographer .....	Michael Fisher
Librarian NMAA/NPG .....	Cecilia Chin

*NATIONAL MUSEUM OF AMERICAN HISTORY*

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Deputy Director .....	Douglas E. Evelyn
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Assistant Administrator .....	Richard J. Nicastro
Special Assistants to the Director .....	Naomi Glass
	Lawrence A. Bush
	Richard S. Virgo
	Eleanor Trowbridge
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Executive Director .....	Herbert R. Collins
Curators .....	Reidar Norby
	James H. Bruns

*National Numismatics Collections*

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Curator .....	Coralee C. Gilliland

*Eisenhower Institute for Historical Research*

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	Michael R. Beschloss
Fellows .....	Pricilla Roberts
	Merritt Roe Smith
Research Associate .....	Derek Leebaert

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Building Manager .....	William F. Sanford (Deceased 9/1/84)
	James Whoolery

*Division of Conservation*

Head Conservator .....	J. Scott Odell
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Assistant Director for Exhibits .....	J. Michael Carrigan
Deputy Assistant Director .....	Leonard Faber
Acting Chief of Design .....	Deborah M. Bretzfelder
Chief, Exhibits Production .....	Walter N. Lewis
Chief, Historic Restoration .....	Charles Rowell

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Deputy .....	Lonn Taylor
Public Information Officer .....	Mary Dyer
Director, Program in Black American History .....	Bernice Reagon
Editor .....	Robert Selim
Production Director .....	Harold Closter
Performance Director .....	James Weaver

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Assistant Registrar .....	Katherine Spiess

*Archives Center*

Senior Archivist .....	John Fleckner
Archivist .....	Robert Harding
Historian .....	Spencer Crew

*Technology & Culture*

Editor .....	Robert Post
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*Afro-American Communities Project*

Director .....	James O. Horton
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Chairman .....	Gary B. Kulik
Vice Chairman .....	Susan H. Myers

*Ceramics and Glass*

Curator .....	Susan H. Myers
Curators Emeriti .....	Paul V. Gardner
	J. Jefferson Miller II
	C. Malcolm Watkins
Research Associate .....	Ivor Noël Hume
Consultant .....	Maureen R. Torgerson

*Community Life*

Curators .....	Richard E. Ahlborn
	Carl H. Scheele

*Costume*

Curator .....	Claudia B. Kidwell
Curator Emeritus .....	Anne W. Murray
Fellows .....	Valerie Fahnestock Steele
	Catherine Beeker

*Domestic Life*

Curators .....	Anne C. Golovin
	Rodris C. Roth
	Barbara C. Smith

<i>Graphic Arts</i>	
Curators .....	Elizabeth M. Harris Helena C. Wright
<i>Musical Instruments</i>	
Curators .....	John T. Fesperman Cynthia A. Hoover
Fellow .....	Mark Tucker
Collaborators .....	Robert H. Hazen Margaret Hindle Hazen Sheridan Germann
<i>Political History</i>	
Curators .....	Margaret B. Klapthor (Retired 12/31/83) Edith P. Mayo Keith E. Melder
<i>Textiles</i>	
Curator .....	Rita J. Adrosko
<i>Department of the History of Science and Technology</i>	
Chairman .....	Arthur P. Molella
Deputy .....	William L. Withuhn
<i>Electricity and Modern Physics</i>	
Curators .....	Bernard Finn Paul Forman
<i>Extractive Industries</i>	
Curators .....	James C. Daniel John T. Schlebecker George T. Sharrer
<i>Mathematics</i>	
Curator .....	Uta C. Merzbach
<i>Mechanisms</i>	
Curators .....	Otto Mayr (Resigned 4/1/84) David F. Noble Carlene Stephens
<i>Medical Sciences</i>	
Curators .....	Audrey B. Davis Ramunas A. Kondratas Barbara Melosh
Curator Emeritus .....	Sami K. Hamarneh
<i>Mechanical and Civil Engineering</i>	
Curator .....	Robert M. Vogel
<i>Armed Forces History</i>	
Curators .....	Edward C. Ezell Donald E. Kloster Harold D. Langley

Historian .....	James Hutchins
Curator Emeritus .....	Craddock R. Goins, Jr.

*Photographic History*

Curator .....	Eugene Ostroff
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*Physical Sciences*

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*Transportation*

Curators .....	John H. White William L. Withuhn Philip Lundeberg
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Senior Scientific Scholar .....	Robert P. Multhauf
Historian .....	Steven Lubar

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Executive Officer .....	Barbara A. Hart
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Curator of Exhibitions .....	Beverly J. Cox
Curators of Painting and Sculpture .....	Monroe Fabian Ellen Miles
Curator of Prints .....	Wendy Wick Reaves
Curator of Photographs .....	William F. Stapp
Curator of Education .....	Kenneth Yellis
Editor of Publications .....	Frances S. Wein
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Keeper, Catalog of American Portraits	Mona Dearborn

National Survey Coordinator, Catalog of American Portraits .....	Richard K. Doud
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Editor of the Charles Willson Peale Papers and Historian of American Culture .....	Lillian B. Miller
Librarian .....	Cecilia Chin
Conservator .....	Cindy Lou Molnar (Appointed 6/4/84)

Senior Photographer .....	Eugene Mantie
Registrar .....	Suzanne Jenkins
Public Affairs Officer .....	Sandra Westin

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<b>Director</b> .....	<b>Wilcomb E. Washburn</b>
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Special Assistant .....	W. Donald Duckworth
Program Analyst .....	Thomas J. Peyton

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Administrative Officer .....	Vernetta M. Williams
Information Specialist .....	Marjorie W. Cleveland
Conservation Information Aide .....	Bernard W. Gallagher

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Senior Textile Conservator .....	Mary W. Ballard
Senior Paintings Conservator .....	Roland H. Cunningham
Senior Objects Conservator .....	Carol A. Grissom
Objects Conservator .....	Mary Lou Garbin
Senior Paper Conservator .....	Timothy J. Vitale
Senior Furniture Conservator .....	Marc A. Williams
Furniture Conservator .....	Donald Williams
Conservation Technician .....	Thomas MCT Raysor

#### *Conservation Science*

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Conservation Scientist .....	Joan W. Mishara
Contract Instrumentation Engineer .....	John Frieman
Metallurgist .....	Martha E. Goodway
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	David W. Von Endt
Chemists .....	Walter R. Hopwood
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Archaeologist .....	Ronald L. Bishop
Research Chemist .....	James M. Blackman
Physical Science Analyst .....	Yu-Tarng Cheng
Chemist .....	Emile C. Deal
Contract Archaeologist .....	Bruno Frolich

#### *Research Associates*

Susan Hobbs  
Robert M. Organ

### NATIONAL MUSEUM ACT PROGRAMS

<b>Coordinator</b> .....	<b>Barbara K. Schneider</b>
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Assistant Chief	
Chief of Production .....	John Widener
Assistant to the Chief	
Chief, Editor's Office .....	Karen Hummer Fort
Administrative Officer .....	William M. Clark, Jr.
Assistant Chief of Production	
Supervisor, Graphic Production .....	James A. Speight, Jr.
Supervisor, Fabrication .....	Kenneth R. Clevinger
Supervisor, Models Shop .....	Walter G. Sorrell

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Foreman, Grounds Management Division	Kenneth Hawkins
Manager, Greenhouse/Nursery Division	August A. Dietz IV

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Coordinator .....	Nancy J. Fuller
Kellogg Project Coordinator .....	Philip Spiess II
Kellogg Project Program Assistant .....	Margo Del Vecchio
Museum Evaluator .....	Robert L. Wolf
Training Program Coordinator .....	Mary Lynn Perry
Intern and Visiting Professionals	
Program Coordinator .....	Raymond Branham
On-Site Workshop Program Coordinator	Pamela W. Leupen
Audiovisual Program Coordinator .....	Laura Schneider
A.V. Production Specialist .....	Roger Wedgeworth
Distribution Coordinator .....	Bettie J. Lee
Administrative Clerk .....	Mary J. Paden
Museum Reference Center Librarian ..	Catherine Scott

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<b>Registrar</b> .....	<b>Philip Leslie</b>
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Deputy Archivist .....	William A. Deiss
Associate Archivists .....	Alan L. Bain
	Richard V. Szary
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	Harry G. Heiss
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	James A. Steed
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Historian .....	Pamela M. Henson

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Trade Literature Indexer .....	
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and Loan Services .....	Mary Clare Gray
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	Barbara Veloz
Library of Congress Liaison .....	
Librarian .....	Janette K. Saquet
Chief Librarian, Museum Reference	
Center .....	Catherine D. Scott
Chief Librarian, Special Collections ..	Ellen B. Wells
 <i>Branch Research Libraries</i>	
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Chief Librarian, SIL Branch, NASM ..	Frank Pietropaoli
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	Amy Levin
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Chief Librarian, SIL Branch, NMAfA	
Chief Librarian, SIL Branch,	
Museum Support Center .....	Karen Preslock
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Reference Librarian .....	Charles Berger
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Assistant Librarian .....	Angeline Smith
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Chief Librarian, SIL Branch, NZP ...	Kay Kenyon
Chief Librarian, SIL Branch, STRI ...	Carol Jopling
Chief Librarian, SIL Branch, SAO ...	Joyce M. Rey
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Collections Management Division ...	Nancy E. Gwinn

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Conservator ..... Maria Nugent

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Senior Exhibition Coordinator .....	Martha Cappelletti
Exhibition Coordinators .....	Judith Bell
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	Elizabeth Driscoll
	Matou Goodwin
	Donald McClelland
	Susan Schreiber
	Betty Teller
Associate Director for Administration ..	Antonio Diez
Head Registrar .....	Mary Jane Clark
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Registrar for Shipping .....	Janet Freund
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Associate Director for Communications	Vacant
Publications Officer .....	Andrea Stevens
Head Education Coordinator .....	Marjorie Share
Education Coordinator .....	Julia Shepherd
Public Information Officer .....	Vacant

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	Thomas E. Lowderbaugh
Coordinator for Special Education .....	Janice Majewski
Career Awareness Program Coordinator	Montrose Cones
Assistant Intern Coordinator .....	Fernando Silva
Administrative Assistant .....	Mary Williams
Program Assistants .....	Evelyn Reese
	Ruth Sheets

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Ethnomusicologist .....	Kazadi wa Mukuna
Folklorist .....	Marjorie Hunt
Administrative Officer .....	Betty Beuck Derbyshire (Sabbatical Leave)

Acting Administrative Officer .....	Jewell Dulaney
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Technical Production Specialist .....	Richard Derbyshire
Program Specialist .....	Arlene Liebenau
Audio-Visual Assistant .....	Cal Southworth
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Clerk-typist .....	Yvette C. Duffy

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International Activities Specialists .....	Saundra Thomas
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Motion Picture Production Specialist .....	John W. Hiller
Radio Production Specialists .....	Jesse E. Boggs
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Distribution Section Supervisor .....	Rosa E. Maness

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Senior Editor .....	Alexis Doster III

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Associate Producer .....	Margaret Robinson
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Financial Analyst .....	Frances C. Rooney
Assistant Treasurer, Office of Accounting and Financial Services ...	Allen S. Goff
Senior Systems Analyst .....	John P. Howser
Cash and Investment Analyst .....	Adele R. Bock
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Assistant Director, Grants Management .....	Rick R. Johnson
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APPENDIX 8. *Donors to the Smithsonian Institution in  
Fiscal Year 1984*

The Board of Regents and the Secretary of the Smithsonian Institution join with the entire staff in thanking all of the Institution's friends for their generous financial support and for their gifts to the collections. If perchance the name of any donor has been omitted from the following list, it is an inadvertence and in no way diminishes the Institution's gratitude. Many gifts were received from donors who prefer to remain anonymous; the Smithsonian wishes to thank them for their generosity.

SCIENCE

NATIONAL AIR AND SPACE MUSEUM

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*Donors to the Collection*

Acorn Products (through David Quinn): 2 slipper socks.  
Aerospatiale Inc. (through Georges P. Roche, President): painting, *Avant-garde of Vertical Flight*, by Jack Pardue.  
Agawam Historical Society (through Marilyn Curry): concrete door lintel.  
Atlas Van Lines (through Bill Muncey Industries): Atlas Van Lines U-1 hydroplane.  
Mrs. Bernt Balchen: flying helmet and goggles.  
Lt. Jeff Bauer: U.S. Air Force navigator badge, and a 325th bomber squadron patch.  
Mr. Donald O. Beck: aircraft, Beck-Mahoney Sorceress.  
Mr. Mike Bortsheller: model, Taylor E-2 cub.  
Mr. Michael Boss: 2 paintings, *Winnie Mae*, and *Alhambra Morning*, by Michael Boss.  
California Institute of Technology (through James A. Westphal): 3 vidicon tubes.  
Mr. and Mrs. Warren Bush (Phyllis): painting, *Spring Morning*, by William S. Phillips.  
Ms. Kathleen Cantin: painting, *Lone Eagle*, by Kathleen Cantin.  
Civil Air Patrol Historical Committee (through Col. Louisa S. Morse): collec-

tion of awards and insignia of the Civil Air Patrol including 3 chevrons, 35 badges, 9 insignias, 4 patches, 2 pins, 3 ribbons, 1 crest, and 1 medal.

Cessna Aircraft Company: collection of avionic equipment (88 items).

Color Marketing Concepts (through Edward E. Mullen): 2 bronze sculptures, *Dig and Continental Divide*, by Greg LeFevre.

Mr. Steve Cox: painting, untitled (P-26 Peashooter), by Steve Cox.

Mrs. C. M. Cunningham: aircraft, Quickie, homebuilt.

Captain Arthur D. Dean, Jr.: U.S. Navy winter flying suit, World War II.

E. I. du Pont de Nemours and Company: aircraft, Solar Challenger.

Egyptian Air Force (through General Saad Shabaan): aircraft, Hispano HA-200 Cairo.

Mr. J. A. Eney: windscreen frame from Pitcairn Mailwing.

Federal Aviation Administration (through General Services Administration, region 9): aircraft, Fairchild C-123 Provider.

Federal Express Corporation: aircraft, Dassault Falcon.

Mr. John R. Fleischer: 2 paintings, *Gee Bee at Springfield* and *Rapide*, by John Fleischer.

Mr. James Frederick: 4 drawings, *Stearman*, *P-26 Peashooter*, *J-3 Piper Cub*, and *T-6 Texan*, by James Frederick.

Mr. Louis Gallo: gunsight, German World War II.

Mr. Paul W. Gillan: painting, *First Commercial Air Mail*, by Paul W. Gillan.

Mr. Marvin M. Green: photo album with autographs.

Mr. Robert K. Grubb: painting, *The Duck*, by Robert Grubb.

Mr. Billy J. Guinnane: two-blade wood propeller.

Mr. George D. Guzzi, Jr.: 2 paintings, *Wedell-Williams Racer* and *Supermarine S6B*, by George D. Guzzi, Jr.

Mr. J. Clifford Hanna: poster, French, World War I.

High Altitude Observatory, National Center for Atmospheric Research: Lit-trow spectrograph.

Mr. Frank G. Hoffman: painting, *Curtiss Carrier Pigeon*, by Frank Hoffman.

Mr. Larry Janoff: 2 paintings, *Montana Mail Contract* and *Cavorting Around the Cumulus*, by Larry Janoff.

Mr. Richard Johnson: U.S. Navy World War II flying jacket.

Mrs. Betty Johnson-Shoon and Allie B. Johnson: U.S. Army Air Service uniforms and memorabilia, World War I: 2 garrison caps, service coat, service breeches, 4 pairs of leggings, dress service coat, dress service breeches, service cap, helmet, service shirt, gas mask, 2 duffle bags, sewing kit, identification tags, eyeglasses, 2 medals, lapel pin, 4 books, trench mirror, and collection of personal papers of Forrest Larkin Berry.

Kaman Corporation: painting, *The Lamps Team*, by Donald Vance Cox.

Mr. Craig Kodera: painting, *Beechcraft Means Business*, by Craig Kodera.

Mr. Sarkis Kojoyian: pitot-static tube.

Mrs. Eva Kollsman: Kollsman altimeter.

Mr. Hugh Laidman: painting, *Winnie Mae Hung up in Siberia*, by Hugh Laidman.

Mr. Peter Lautenslager: painting, untitled, by Peter Lautenslager.

Mr. George Lee: model, Sikorsky *Spirit of America*.

Mr. Anthony W. Levier: aircraft, Monocoupe Model 70.

Mr. Charles Lock: painting, *Checking Drift: First Transpacific Flight, May, 1928*, by Charles Lock.

Lockheed Missiles and Space Co.: camera, aerial, *Moby Dick*.

Marathon Battery Company (through Richard W. Cowan): painting, *Mercury Astronauts*, by Ted Wilbur.

Martin Marietta, Denver Division: scale model, Titan Centaur launch vehicle.

Mrs. Chet McCall: painting, *Polar Expedition*, by C. A. L. Laterman.

McDonnell Douglas Corporation: composite rudder, composite speed brake for F-15, and Gemini spacecraft material samples.

Mr. J. G. Mercer: sailplane, Applebay Zuni II.

Mr. and Mrs. Harold Miller (Ivonne), Wilkinson and Marion Wright, Horace and Susan Wright, Milton Wright and John Jameson: original propeller for Wright 1903 *Flyer*.

Mr. Frank Mitchell: model, Boeing P12E aircraft.

Mr. Brian David Moose: painting, *Wrong-way Corrigan's Robin*, by Brian David Moose.

Mr. William H. Morris: U.S. Army Air Force World War II escape map and 2 escape flags.

Mrs. William Nance (Nancy): uniform accessories from Mohawk airlines.

National Aeronautics and Space Administration, Ames Research Center: aircraft, HiMAT remotely piloted vehicle.

National Aeronautics and Space Administration, Headquarters, Washington, D.C.: Guion Bluford's STS-8 inflight coverall garment, 2 STS-8 mission patches, and the publication *Black Wings: The American Black in Aviation* carried on the Space Shuttle *Challenger*.

National Aeronautics and Space Administration, Jet Propulsion Laboratory: model, Seasat remote-sensing satellite.

National Aeronautics and Space Administration, Johnson Space Center: STS-5 checklist, Richard Truly's Space Shuttle inflight coverall garment, Apollo 16 lunar surface cosmic ray experiment, quadrant reaction control system, six samples of space food from STS-1.

Mr. Robert Nevin: model, Curtiss 1911 Hydroplane.

Ms. Kena Rae O'Connor: 1 gun camera.

Mr. William Odell: model, gunnery training aid.

Ms. Jeanne Parker: painting, *A Bit of Aviation History*, by Jeanne Parker.

Mrs. Jefferson Patterson: New Testament circa 1918, U.S. Army Air Force.

Mr. Martin Pearl: Breda machine gun for Italian aircraft, World War II.

Mr. Davis Perkins: 2 drawings, *Alaska Smokejumper*, *Practice Jump*, and a painting *Lindbergh's Enroute to Nome*, by Davis Perkins.

Petrus Operating Company (through H. Ross Perot Sr.): helicopter, Bell 206L-1 LongRanger II, *Spirit of Texas*.

Mr. Robert L. Plogman: painting, *Island Airline's Tin Goose*, by Robert L. Plogman.

Popular Mechanics (through John Linkletter, Editor): painting, *Lt. George Bush, 1943*, by Ted Wilbur.

Post Offers International, Inc. (through Jack Carroll, President): painting, *Space Shuttle Columbia: The Pathfinder*, by Kenneth Kotik.

Mr. George Pouden: German magneto.

Mr. Blair Tarley Pruitt: handwritten notebook on Liberty engine, circa 1918.

Radio Corporation of America, Government Systems Division: 2 radio transceivers and 2 radio control sets.

Mr. Jack Reed: Balcomp model PBM-3 computer.

Mr. Lawrence L. Rice: painting, *The Ultimate Flight*, by Lawrence L. Rice.

Mr. Edwin H. Ryan: painting, *Buttoned Up for Paris*, by Edwin H. Ryan.

Mr. Herbert Schimmel: 2 prints, *Wright Brothers* and *Concorde*, by Ay-O.

Mr. Mark W. Scott: painting, *Sikorsky's Classic*, by Mark W. Scott.

Mrs. Vikki Slowe: 3 prints, *Eclipse*, *Saturn Rings I*, and *Saturn Rings II*, by Vikki Slowe.

Smithsonian Astrophysical Observatory: Baker-Nunn camera.

Smithsonian Institution Resident Associate Program: print, *View of the Mall from the Castle*, by Richard Hass.

Mrs. Mary Smookler: Norden bombsight.

- Mr. Max R. Stanley: painting, *Flying Wing*, by Harlan Krug.
- Mr. Ralph B. Steele: painting, *Winnie Mae at the Volga*, by Ralph B. Steele.
- Mrs. St. Clair Streett: Mackay medal, and Aero Club of America medal.
- Society of Flight Test Engineers: Kelly Johnson Award Trophy.
- Mr. A. L. Sutton: aircraft, Bellanca monoplane, circa 1948.
- Mr. Stanley Tate: two-blade wood propeller.
- Mr. Edward Tindall: 9 propellers, 4 carburetors, 2 oil coolers, 2 antenna masts, wheel assembly, rudder pedals, lift strut, and ailerons.
- United Technologies (through Sikorsky Aircraft Division): painting, *Evolution of a Helicopter*, by Victor Olson.
- U.S. Army, Aircraft System Division, St. Louis, Missouri (through Paul Hendrickson): engine, Lycoming turboshaft.
- U.S. Army, Center of Military History: 4 Japanese World War II bomb fuses, 2 aircraft signals, and 3 pairs of U.S. Army Air Corps flying trousers.
- U.S. Navy (through James F. Goodrich, Secretary of the Navy): aircraft, Grumman G-21 *Goose*.
- U.S. Navy, Naval Air Propulsion Center, Trenton, New Jersey (through Labro Parish): Japanese tire.
- U.S. Navy, Naval Air Station, Willow Grove, Pennsylvania: Junkers Jumo 004 turbojet engine.
- U.S. Navy, Naval Air Systems Command Headquarters: Allison T78A-2 turboprop engine.
- U.S. Postal Service (through William Bolger, Postmaster General): STS-8 philatelic cover.
- Mr. Virgil W. Vaughan: U.S. Army Air Corps garrison cap, service coat, dress gloves, handkerchief, scarf, and Air Transport Command garrison cap, service coat, service shirt, and a pair of trousers with belt.
- Mr. Myron Verville: engineering instruments; German depth gauge, 2 planimeters, a pair of proportional dividers, and a turn buckle.
- Mr. James Webb: Presidential medal of freedom, 2 pairs of bookends, a plaque, and an autographed \$20 bill.
- Mr. T. M. Whaley: wire spoke wheels with tires.
- Mr. Gordon E. White: collection of aircraft radio equipment; 49 radio receivers, 15 radio transmitters, relay unit, converter unit, 2 glidescope indicators, navigation control switch, identification unit, 4 tuning units, 10 antennas, direction finder, test set, 2 amplifiers, automatic selector, 27 control boxes, 5 frequency meters, 2 generators, 9 test units, switch box, 2 radio filters, microphone, 7 radio racks, 7 radio mounting bases, signal converter, 4 junction boxes, 3 radio compasses, test harness, 4 power units, dynamotor, beam filter, 5 coil sets, keyer, aligner adapter, vacuum tube, and a carrier homer unit.
- Mrs. Mary A. Yattaw: U.S. Navy winter flying trousers, World War II.

#### *Donors to the Records Management Division*

- Allied Air Force Intelligence Summaries: Documents (7 cubic feet) on World War II.
- Mr. Warren Bodie: 250 aircraft photographs and negatives.
- Mr. Gary Brounstein: 146 photographs and 756 negatives of aircraft located in European museums.
- Mr. Walter J. Boyne: 300 miscellaneous aircraft photographs.
- General Ira Eaker: Photographs and scrapbooks from General Eaker's aide, James Parton.
- Fairchild Industries: 87 boxes of aircraft technical manuals.

Mr. Vic Fisher: 142 photographs of aircraft in the Pima Air Museum.  
 Ms. C. E. Ganse: Polish Pioneer Scrapbook.  
 Mr. Chalmers H. Goodlin: Biographic and Burnelli documentation and photographs on B-24 nose art.  
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 Mr. Peter Grosz: Weyl-Grosz Collection.  
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 Mr. Terry Gwynn-Jones: 150 early flight hand-tinted slides.  
 Mr. K. Hull: 4 photographs of Grumman seaplanes in Alaska.  
 Dr. Patricia Jacobberger: Autographed picture of Jimmy Doolittle in his Gee Bee Racer.  
 Mr. Allen Levine: Mercenary pilots information.  
 Mrs. Sarah Lindsey: 150 books and copies of U.S. aeronautical charts from Mr. McMullen's collection.  
 Mr. Elliott Robinson: 7 scrapbooks of general aviation photographs taken in Washington, D.C. area pre-World War II.  
 Mr. Victor Rosholt: Magazine and 9 photographs of the Flying Tigers.  
 Mr. Colin Smith: Postcards of Royal Air Force and aviation events—first-day covers.  
 Prof. Luigi Stipa: Photographs, postcards, and a book on Stipa Caproni aircraft.  
 St. Clair Street: Photographs and personal papers.  
 United Airlines: Manuals on Boeing SST and McDonnell Douglass DCX-200.  
 Mr. Bernard Vosh: Copies of the Wright brothers' letters and sale of the Army Flyer.  
 Mr. Woodbridge Williams: 6 photos of Peterson Field, Colorado, in World War II.

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### INDIVIDUALS

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Abbott, Dr. R. Tucker: 1 mollusk (356602).  
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Albini, Anthony J.: 3 minerals (354606, 359316).  
Al-Far, Dr. Darwish Mostafa: 1 meteorite (359989).  
Alvarez, M. Belinda: 8 sponges (358236).  
Amestoy, Mr. & Mrs. Simon: 1,117 miscellaneous insects (357182), 188 moths (358508).  
Amrine, Dr. J.: 16 black flies (358108).  
Anderson, Mrs. Verne E.: 500 fossils, 500 mollusks (358002).  
Andrews, George: 1 fossil whale rostrum (354780).  
Angle, J. Phillip: 1 mink (360549).  
Arif, Syed M.: 9 minerals (355930).  
Arnal, Robert E.: 28 fossils (356099).  
Ashby, Wallace L.: 1 porpoise skull and skeleton (355504).  
Asheim, Arne: 9 minerals (355918, 356825, exchanges).  
Asher, Mr. & Mrs. Charles: 29 fossils (359800).  
Ausich, Dr. William I.: 52 crinoids and cystoids (359831).  
Avick, Ben: See also Charles Meltzer (340415).  
Ayala L., J. Manuel: 1 butterfly (360353).  
Axelrod, Miriam: 12 reptiles and amphibians (347624).  
Babcock, Loren E.: 22 fossils (355855, 356558, 358155).  
Baker, Alan: 1 echinoderm (359187).  
Baker, Aura L.: 8 fossil seal and flounder remains (358191).  
Baker, Wayne: 1 portion of a fossil whale skull (358193).  
Ball, Dr. George E.: 8 insects (360139).  
Barlow, F. John: 15 quartzs (359351).  
Baum, John L.: 4 minerals (354676, 359331).  
Baumann, Dr. R. W.: 2 stoneflies (359382).  
Begley, R.: 1 crystal model (355958).  
Bell, Rex R.: mineral samples (359329).  
Bell, Dr. Ross T.: 2 insects (361336).  
Belsky, Howard: 12 minerals (356748).  
Bernabe, Ezio: 18 minerals (357529).  
Beus, Professor Stanley S.: 21 fossils and 10 fossil casts (360721).  
Bevins, Dr. R. E.: 1 mineral (360029).  
Bideaux, Richard: 2 minerals (359339).  
Biernbaum, Dr. Charles K.: 450 worms (360043).  
Bivin, Kenneth L.: 1,636 beetles (360333).  
Blade, Arlene: 8 plants (356146).  
Blanchard, Andre: 4 small moths (358098).  
Blasdell, Francis S.: 2 amphibians (353804).  
Blood, Fred B. See also Marceile B. Riddich (307412).  
Blodgett, Dr. R. B.: 8 fossils (358224).  
Bogar, Daniel S.: 32 insects (358076, 360330).  
Boggs, Robert: 5 minerals (359938).  
Bogoch, Dr. Ron: 1 mineral (357522).  
Bogum, Mary: 1 fossil seal toe bone (358192).  
Bohaska, David J.: 37 fossil seal and bird remains (357302, 358035, 359928, 360132).  
Boone, Daniel: 5 plants (357051, 357059).  
Boucot, Dr. A. J.: 1 brachiopod (359892).  
Boyce, James R.: 43 fossil plants and vertebrates (357449).

Boyd, John: 1 fossil whales tooth (354784).  
 Braswell, Alvin L.: 4 lizards (357935).  
 Bray, Dr. Dale F.: 9 metallic wood boring beetles (358516).  
 Brayfield, Mr. & Mrs. William: 1 cast of a fossil walrus tusk (360514).  
 Brenkle, Dr. Paul: 148 fossils (356682).  
 Brenner, David: 6 plants (349698).  
 Brett-Surman, Michael: 1 fossil cast (360657).  
 Brinkhurst, Dr. Ralph O.: 26 worms and 20 worm slides (360386).  
 Brisbin, I. Lehr: 3 birds (358618).  
 Brittain, Mary Ann: 1 fossil seal phalanx (358064).  
 Brostoff, Bill: 2 worms (358120).  
 Brou, Vernon Antoine: 50 insects (360331, 361342).  
 Brown, Dr. Harley P.: 13 riffle beetles (360362).  
 Brozdowski, Dr. Robert A.: See also Dr. Gene C. Ulmer (358406).  
 Buchanan, Paul and Helen: 12 fossil vertebrates (355568).  
 Buchanan, Helen: See also Paul Buchanan (355568).  
 Burges, Roy H.: 1 fossil gray seal (360128).  
 Burns, Mr. & Mrs. Thomas: 3 fossil seal bones (359918).  
 Cadle, John E.: 2 fishes (350235).  
 Callegari, Mario C.: 76 insects (361338).  
 Campbell, Robert H.: 16 fossil woods (359216).  
 Canepari, Dr. Claudio: 234 beetles (357195, exchange).  
 Cannon, Bart: See also Stuart Fund (357553).  
 Cary, Steve J.: 13 skippers and butterflies (359374).  
 Cardinale, Gary: 1 fossil seal vertebra (358226).  
 Case, Gerard R.: 1 partial fossil sea cow rib and 30 fossil vertebrates (358916).  
 Caspi, Uri: 2 butterflies (358082).  
 Cekalovic K., Dr. Tomas: 1 insect (360340).  
 Chace, Dr. Fenner A., Jr.: 1 crab claw (358152).  
 Chapman, Ralph E.: 5 fossils (356943).  
 Chavez, Mr. & Mrs. Henry: 1,188 moths (358509).  
 Chemsak, Dr. John A.: 26 beetles (358100).  
 Cheng, Hsien Yu: 119 geckos (357967).  
 Chess, Dr. Tony: 12 worms (355220).  
 Chilman, Mrs. Ruth E.: 90 ostracodes (358492).  
 Clarke, A. H.: 50 freshwater mollusks (359160).  
 Clarke, Dr. J. F. Gates: 253 insects (358103, 361535).  
 Clench, Dr. William J.: 980 land and brackish water mollusks (359850).  
 Cocroft, Rex: 1 bird (356032).  
 Coffman, John F.: 68 moths (359368).  
 Collette, Bruce B.: 1 ratsnake (357969).  
 Collins, Dr. Henry B.: 1 walrus (357353).  
 Collins, Dr. Margaret S.: 25,967 miscellaneous insects and arthropods (361555).  
 Coon, Mr. & Mrs. William: 3 fossil seal and whale remains (358062).  
 Correia, Robert F.: 1 fossil turtle pygal (356928).  
 Coull, Dr. Bruce C.: 56 worms (357024, 360975).  
 Covell, Dr. Charles V., Jr.: 35 butterflies and moths (358512).  
 Coveney, Raymond M., Jr.: 2 minerals (359941).  
 Cranfill, Julian: 15 minerals (354677, 356761).  
 Crawford, Robert: 7 birds (355758).  
 Cuffey, Dr. Roger J.: 5 zoarias and 4 epoxys (357878).  
 Cullinan, Michael D.: 2 fossil blue crabs and a fossil seal phalanx (359164).  
 Cutler, Dr. Edward B.: 41 worms (358065).  
 D'Attilio, Anthony: 3 mollusks (358997).

Dastych, Dr. Hieronim: 1 worm (355567).  
 Davis, Dr. Don R.: 228 moths (358500).  
 Davis, Mark S.: 270 insects (358102).  
 De C. Rios, Dr. Eliezer: 2 mollusks (355885).  
 Degener, Dr. Otto: 14 plants (358798).  
 DeJong, Dr. D. C. D.: 1 plant (356234).  
 DeMark, Ramon S.: 14 minerals (355891, exchange); 1 mineral (356823).  
 Denham, Dale L.: 1 plant (356175).  
 Deno, Dr. Robert: 8 butterflies (359377).  
 Desautels, Paul: 4 minerals (361030).  
 de Vaugelas, Dr. Jean: 50 worms (360367).  
 Dillon, Dr. Lawrence S.: 383 mammalian hearts; 1 bird heart (353670).  
 Dinerstein, Dr. Eric: 3 bats (357377).  
 Diniz, Frei Jorge L. Machado: 4 ants (354140).  
 DiSalvo, Dr. Louis H.: 43 mollusks (354130, 355517).  
 Ditadi, Dr. A. S. F.: 1 worm (356593).  
 Douglas, Raymond: 31 fossil fish, bird, and mammal remains (357441).  
 Downs, Dr. William G.: 8 caddisflies (361334).  
 Drez, Paul E.: 1 partial fossil sirenian rib (354732).  
 Dunlap, Harry C.: 2 gray squirrels (357364).  
 Eaton, Dr. Stephen W.: 81 bird skeletons and 4 bird skins (347819).  
 Echols, Thomas G.: 1 frontlet with horns (360543).  
 Eisele, Reverend Robert: 102 butterflies (358085, 361340); 114 butterflies (358101, exchange).  
 Eldredge, Glen A.: 80 mollusks (359883).  
 Eleischer, Dr. Michael: 1 beryl (358371).  
 Emerson, Dr. K. C.: 3,005 insects (361552).  
 Erdman, Donald S.: 12 crustaceans (358239).  
 Eriksson, Roland: 18 minerals (357518).  
 Erseus, Christer: 81 worms and 23 worm slides (358269, 359479, 359819, 361310).  
 Eshelman, Dr. Ralph E.: 1 fossil whale periotic (354782).  
 Evitt, Dr. W. R.: 374 fossils (359169).  
 Ewing, R. Michael: 5 worms (358156).  
 Feather, Russell, II: 3 minerals (359341).  
 Feinglas, Dr. Mark: 24 minerals (357575, 357576, 359335, exchanges).  
 Felix-Alves, Dr. Ildio A.: 538 marine and freshwater mollusks (352510).  
 Ferguson, Albert L.: 1 fossil seal tibia, fibula, and pelvis (358222, 359501).  
 Ferguson, Dr. George R.: 20 wasps (358496, 361315).  
 Ferraiolo, James: 2 minerals (358421).  
 Ferris, Dr. C. D.: 215 butterflies (359372).  
 Finney, Dr. Stanley C.: 7 graptolites (358347).  
 Fishelson, Professor Lev: 10 marine mollusks (360310).  
 Fletcher, Art: 1 mineral (357528).  
 Fonger, George C.: fossil fish, mammal and reptile remains, 1 fossil seal skull, 2 fossil bird bones (358219, 359125).  
 Ford, Everett J.: 3 beetles (358483, exchange).  
 Fordyce, Dr. R. Ewan: 11 casts of fossil whales (355524).  
 Foster, Dr. Nancy M.: 354 worms (356882).  
 Foye, Harry: 5 minerals (354670, 358434).  
 Franclemont, Dr. John G.: 251 moths (358106).  
 Frazier, Dr. John C.: 8 worms (356745).  
 Freed, Mr. & Mrs. Charles L.: 3 minerals (357544).  
 Freidberg, Dr. Amnon: 44 sawflies (361539).  
 Freitag, Thomas M.: 5 freshwater mollusks (358326).  
 Friedrichsen, Gary: 6 birds (349940).

Fugler, Charles M.: 1,844 reptiles and amphibians (350381, 351804, 351806).  
Funk, Dr. Vicki: 424 plants (356160).  
Gaines, Richard V.: 3 tektites (359991).  
Galli, Don: 4 worms (361360).  
Galvani, G.: 14 minerals (355896, exchange).  
Garcia-Vidal, Dr. Miguel: 2 scarab beetles (361343).  
Garmo, Torgeir T.: 2 minerals (356796).  
Gauthier, Gilbert: 11 minerals (358365).  
Gaylord, Mr. & Mrs. Frank and Brian: 1 fossil seal jaw (358346).  
Gerling, Dr. Dan: 6 bees (360361).  
Gibson, Mark E.: 61 crustaceans (313514).  
Gibson-Smith, Dr. J.: 19 marine mollusks (356979).  
Gigase, Dr. Paul L.: 1 fossil whale skull and earbone (357431).  
Gill, Bruce: 59 ground beetles (361341).  
Gilmore, I. K.: 1 fossil sea cow vertebra, rib, and rib fragments (358466).  
Goodyear, James: 3 toads and 1 lizard (298063).  
Grady, Fred: 2 birds (358616).  
Gray, James M. and Catherine D.: 1 petrified log (357189).  
Gunther, Lloyd F.: 1 fossil rock slab and 4 eocrinoids (359798).  
Hahn, Carl R.: 1 mollusk (358289).  
Hall, Jack C.: 298 insects (361639).  
Hammond, Dr. Paul L.: 2 butterflies (361350).  
Hansen, Ernest E.: 1 mineral (356822).  
Harding, Dr. R. R.: 4 minerals (358435).  
Hardy, Dr. Alan: 12 beetles (359531).  
Hardy, Dr. Clyde T.: 1 meteorite (358357).  
Hardy, David: 1,000 crustaceans (345606).  
Haridasan, V. K.: 21 plants (356269).  
Haritos, Mike: 2 quartzs (355932).  
Harlan, Major Harold J.: 268 true bugs (359370).  
Harmatuk, Peter J.: 3,931 fossil vertebrates, fossil fish, reptiles, bird and mammal remains (357440, 357651, 358261, 358535, 358876, 359167).  
Harrington, Francis A.: 24 bats (350063, 353649).  
Harris, Dr. C.: 1 mineral (359980).  
Harris, Dr. Steven C.: 31 caddisflies (358071, 360345).  
Harrison, Dr. Jessica: 43 casts of Tertiary mammal remains (360534).  
Hartley, Dr. John: 13 worms (356708).  
Hartsell, Joe: 1 fossil seal canine (357432).  
Hartshorn, Dr. Gary S.: 3 plants (357844).  
Hartstein, Eugene: fossil shark, bird, and seal bones (358154).  
Harvey, Dr. LeRoy: 83 plants (357818).  
Haslam, Dr. H. W.: 1 mineral (360012).  
Hatzios, Marea: 20 marine mollusks (359478).  
Hauser, Trudy, Estate of: 3,320 fossils (355632).  
Hawes, Bill, Jr.: 66 fossil seeds, flowers, cones, and leaves (359162).  
Hayes, Howard J.: 9 crustaceans (356670).  
Hayward, Dr. Bruce W.: 7 fossils (358989).  
Henderson, Dr. E. P.: 10 minerals (358387).  
Henderson, William A., Jr.: 4 minerals (354667).  
Hendey, Dr. O. B.: 188 mollusks (355468).  
Hentz, Dr. Tucker: 1 fossil (360515).  
Herman, Dr. Rudy: 7 worms (356603).  
Hespenheide, Dr. Henry A.: 31 beetles (359373, 361537).  
Hevel, Gary F.: 14,454 insects (360334).  
Higgins, Dr. Robert P.: 1,000 worms (357020).  
Highton, Richard: 11 salamanders (356039).

Hills, Iris: 1 fossil mastodon lower molar (359927).  
 Hilsenhoff, Dr. William L.: 5 caddisflies (361333).  
 Hitchcock, Dr. Stephen W.: 9,325 insects and arthropods (357865).  
 Hlavin, Dr. William J.: 8 fossils (359133).  
 Hodges, James C., Jr.: 200 caddisflies (359379, 359903).  
 Hollmann, Ken: 4 minerals (354671, 354675).  
 Holzenthal, Ralph W.: 12 caddisflies (360337).  
 Horodyski, Dr. Robert J.: 8 fossils (355511, 360699).  
 Houart, Roland: 2 mollusks (361139).  
 Houchins, Dr. Lee: 1 arctic fox skin (357397).  
 Houser, Mrs. Trudy: 1,276 minerals (355990).  
 Howden, Dr. Henry: 1,700 beetles (358495).  
 Howe, William: 78 butterflies (360350).  
 Hronik, Richard: 11 minerals (355916, 359955).  
 Hubbard, Dr. F. H.: 1 mineral (359299).  
 Hueber, Dr. Francis M.: 1 fossil plant (357019).  
 Hughes, John M.: 5 minerals (357506).  
 Hulings, Neil C.: 151 mollusks (357200).  
 Hutchings, Dr. Pat: 67 worms (356467).  
 Hyatt, Dr. John A.: 19 skippers and butterflies (357637, 358497).  
 Hyne, Mr. & Mrs. Frank: 1,289 fossil fish, bird, reptile and mammal remains,  
 fossil vertebrates (356513, 358258, 358348, 359165).  
 Ikezaki, Dr. Yoshishiro: 11 flower flies (357639, exchange).  
 Ikuji, Dr. Yukio: 163 fossils (358259).  
 Iliffe, Dr. Thomas: 25 worms (342201).  
 Ismay, Dr. John W.: 764 flies (361551).  
 Ivie, Michael A.: 760 insects (358104, 360360, 361335).  
 Jacobs, Jeremy F.: 1 gecko (357968); 13 beetles (358077).  
 Jamieson, Dr. Barrie: 2 worms (360312).  
 Jaxel, Robert: 1 mineral (361031).  
 Jensen, James A.: 1 fossile slab of bird tracks (356656).  
 Jensen, Martin: 25 minerals (354666).  
 Jinright, Prince E., Jr.: 1 fossil sea cow rib (360516).  
 Johnson, Bill: 1 worm (355579).  
 Johnson, Dr. C. D.: 817 seed beetles (360341, 361339).  
 Johnson, Dr. Gary D.: 300 fossil fish, amphibian, and reptile remains (358342).  
 Johnson, Paul J.: 2 pill beetles (360359).  
 Johnson, Thomas T.: 3 brachiopods (358661).  
 Johnson, Walter: 4 tiger beetles (358086, exchange).  
 Johnston, Mary: 5 echinoderms (355683).  
 Jones, Dr. Garry D.: 179 fossils (360085).  
 Jones, Larry and Mark: 1 fossil seal sternebra (357872).  
 Jones, Dr. Robert H.: 4,000 insects (358494).  
 Joy, Dr. James E.: 3 worms (357662).  
 Kanhouwa, Dr. S.: 1 worm (356980).  
 Karr, Mr. & Mrs. J.: 7 fossil fish skulls (358220).  
 Kato, Dr. Akira: 1 mineral (359308).  
 Kauffman, Garnet: 1 fossil seal tibia (357031).  
 Kavanaugh, Dr. David: 22 beetles (360332).  
 Kawakatsu, Dr. Masaharu: 16 worms (355685).  
 Kendall, Roy O.: 4 moths (358087).  
 Kenk, Dr. Roman: 8 worms (356466).  
 Key, Charles: 3 minerals (354648, 356762).  
 Kilburn, R. N.: 1 mollusk (356978).  
 King, Vandall: 3 minerals (356769).

Kingery, Dennis: 2 fossil fruits (358954).  
 Kirchner, Dr. R. F.: 17 insects (360338, 360346).  
 Klein, William L.: 2 sponges (359518).  
 Knisley, Dr. C. Barry: 1 wasp (358504); 4 tiger beetles (358515).  
 Kohn, Dr. Alan J.: 25 mollusks (358450).  
 Kolic, John: 10 minerals (354669, 357519, 359297).  
 Kondratieff, Dr. Boris C.: 113 insects (358110, 358115, 358499, 361549).  
 Korpi, Chris: 10 minerals (354640, exchange).  
 Kosnar, Richard A.: 1 mineral (355928).  
 Krantz, Dr. Grover S.: 4 plaster casts of a hand and a footprint of "Big Foot" (358068).  
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 Krauss, Dr. N. L. H.: 387 insects (360344).  
 Kristensen, Dr. Reinhardt: 50 worms (358544, 358545).  
 Kristoffersson, Torgny: 7 minerals (354656, 357533).  
 Kudenov, Dr. Jerry D.: 30 worms (360323).  
 Kurz, Richard M.: 3 mollusks (358339).  
 Lago, Paul K.: 1 ground beetle (361347).  
 Lake, Dr. R. W.: 20 blackflies (360336).  
 Lane, John: 10 butterflies (358081).  
 Lanoie, Dr. Leo O.: 7 snakes (350027); 1 African squirrel (357371).  
 Larsson, Ronny: 2 echinoderms (356738).  
 Leitheuser, Arthur T.: 3 crayfishes (358020).  
 LeMone, Dr. David V.: 1 fossil (355853).  
 Lenczy, Dr. Rudolph: 243,726 insects (361553).  
 Leobrerera, Carlos and Fely: 6 mollusks (356740).  
 Ling, Cliff E.: 3 minerals (354429).  
 Little, Dr. Elbert L., Jr.: 240 plants (357711).  
 Loeblich, Dr. Alfred R., Jr. and Dr. Helen Tappan Loeblich: 47 fossils (356581, 361024).  
 Longino, Dr. Jack: 10 stink bugs (358073).  
 Maciolek-Blake, Dr. Nancy: 7 worms (357663).  
 Macielek, Dr. John A.: 1,023 crustaceans (299205).  
 Mackay, Anna Case, Estate of: 1 emerald and diamond necklace (359946).  
 Magnusson, Fred: 1 fossil (357457).  
 Maksimovic, Zoran: 9 minerals (359943).  
 Maldonado Capriles, Dr. J.: 305 insects (358088, 361534).  
 Malinow, Mrs. Frances C.: 2 fossil teeth (358343).  
 Manby, Dr. G. M.: 1 mineral (360013).  
 Mancke, Dr. Rudolph E.: 12 fossil teeth (359762).  
 Mariano, Dr. Anthony N.: 1 mineral (358424).  
 Marrow, Maxwell P.: 50 mollusks (359511).  
 Marshall, Elsie J.: 44 mollusks (355884).  
 Martin, Larry: 64 mollusks (359852).  
 Masner, Dr. Lubomir: 5 insects (356920, 358123).  
 Mather, Bryant: 1 insect (358507).  
 Maxson, Linda: 2 frogs (357958).  
 Mayer, Dr. John J.: 1 mammal (357305).  
 McCoy, Dr. Floyd and Dr. Grant Heiken: 11 samples of dacitic pumice (359933).  
 McGuire, Dr. William W.: 43 insects (359386).  
 McKinstry, Mrs. Tish: 1 fossil (360383).  
 McLean, Dr. James H.: 29 mollusks (358451, exchange).  
 McLellan, Jack H.: 3 fossils echinoids (358654).

Means, D. Bruce: 4 reptiles (357943).  
 Megaw, Peter: 2 minerals (359312); 2 minerals (359312, exchange).  
 Meltzer, Charles and Samuel, and Charles Kaufman: 1 chrysoberyl (340415).  
 Merchant, Ginger: 1 hawk (355761).  
 Messer, A. C.: 2,536 insects (361550).  
 Metcalf, Dr. Arthur: 1 mollusk (360140).  
 Mikkelsen, Paul and Paula: 26 mollusks (356857).  
 Miller, H. Lyman: 1 fossil seal skull (357443).  
 Miller, Scott: 5 frogs (356004).  
 Mills, Dr. J. W.: 10 fossils (358257).  
 Moler, Paul: 5 frogs and tadpoles (356086).  
 Moore, Dr. Donald R.: 2 mollusks (361275).  
 Moore, Dr. Paul B.: 4 minerals (358415).  
 Moran, Nancy: 6 insects (360328).  
 Morgan, Leonard: 12 minerals (354665).  
 Morse, Dr. John C.: 56 insects (359109).  
 Morton, Professor Brian: 9 mollusks (358878).  
 Mortvedt, Art: 43 mammals (353613).  
 Murdy, Dr. Edward O.: 1 fish (356310).  
 Murphy, William L.: 297 flies (358091); 370 miscellaneous insects (359371, 360352).  
 Murter, Mrs. Ruth: 1 fossil seal left humerus (357429).  
 Muus, Mrs. Kristen: 500 worms (357021).  
 Nelson, Thomas W. and Jane P.: 2 plants (356194).  
 Nemuras, Kenneth T.: 5 bog turtles (356061).  
 Nestell, Dr. M.: 25 brachiopods (360384).  
 Neumann, A. C.: 1 worm (359248).  
 Newton, Dr. Alfred: 1 insect (358136).  
 Norris, Dr. James N.: 2 fishes (356314).  
 Nunnally, Douglas E.: 1 fossil seal astragalus (358225).  
 Oglesby, Dr. Larry: 1 worm (291629).  
 Opler, Dr. Paul A.: 1,858 butterflies and dragonflies (358498, 358501).  
 Osorio, R. Cecelia: 100 mollusks (360643).  
 O'Sullivan, John: 2 mollusks (360938).  
 Outlaw, C. B.: 21 minerals (355941).  
 Pague, Chris A.: 51 amphibians (356063).  
 Parker, Dr. C. R.: 3 insects (358111).  
 Parr, Dr. W. H.: 1 mineral (357520).  
 Parson, Donald: 64 birds (358631).  
 Peacor, Dr. Donald R.: 3 minerals (355974).  
 Pecor, James: 265 insects (358099).  
 Pence, Jesse: 1 fossil walrus jaw (359231).  
 Pericart, Dr. J.: 2 lace bugs (360343).  
 Pessagno, Dr. Emile A., Jr.: 8 fossils (360044).  
 Petersen, Dr. John L.: 27 blackflies (359381).  
 Peterson, Dr. Mary E.: 40 worms (358024).  
 Petit, Dick: 44 fossils (357875).  
 Philip, Dr. Kenelm W.: 3 butterflies (358083).  
 Phillips, Charles: 1 mineral (356760).  
 Pickett, Joseph F., Sr.: 71 crustaceans (342348, 357461).  
 Pinch, William W.: 29 minerals (357549, 357558).  
 Pinkerton, Mrs. C. E.: 26 mollusks (355600).  
 Pippin, Dr. Warren F.: 2 worms (356707).  
 Pletsch, Dr. Donald J.: 1,093 mosquitos (361546).  
 Pocklington, Pat: 2 worms (359260).

Polhemus, John T.: 161 true bugs (358511).  
Por, Professor F. D.: 250 worms (357022).  
Preston, Douglas: 4 ranid frogs (356015).  
Pulawski, Dr. W. J.: 10 insects (358131).  
Quick, Mr. & Mrs. Murphy: 2 fossils (356897).  
Radowsky, Dr. Frank: 36 insects (359532).  
Rahn, Russell A.: 1,012 insects (357194, 358069, 361401).  
Razowski, Dr. Jozef: 1 insect (358097).  
Reddell, Dr. James: 8 true bugs (358506).  
Reed, Clyde F.: 6 plants (359603).  
Reese, Dr. Ernst S.: 60 worms (292714).  
Rehder, Dr. Harald A.: 4 snails (360072).  
Reid, Dr. David G.: 369 mollusks (356896, 361306).  
Reiger, George: 4 birds (355791).  
Rice, Dr. Stanley A.: 3 worms (361202).  
Riddick, Marceile B.: 2,000 fresh water mollusks (307412).  
Rigby, Dr. J. Keith: 1 fossil (356848).  
Riker, Norman L.: 25 fossil bird, seal, and fish remains (357430, 359232, 360123); 4 sharks teeth (358958).  
Riva, Dr. John: 26 fossils (358953).  
Rivers, Ann: 1 fossil mastodon tooth (358341).  
Roberts, Willard: 3 minerals (358410, 359313).  
Robinson, Dr. A. G.: 14 insect slides (358514, 360347).  
Robinson, George: 2 minerals (357524).  
Rodriguez, Charles: 1 fossil marlin hypural (360655).  
Roemhild, Dr. George: 2 insects (361349).  
Rozman, Dr. X. S.: 55 brachiopods (357301).  
Russell, David: 300 worms (359170).  
Sabrosky, Dr. Curtis W.: 1,790 flies (358084, 360342).  
Sachet, Dr. M. H.: 45 snails (360071).  
Sala, Mr. & Mrs. Frank P.: 353 moths (358505).  
Salers, Thomas: 1 fossil mammoth tooth and partial scapula (358340).  
Sato, Professor Naonobu: 1 meteorite (356753).  
Schmetzer, Dr. Karl: 2 minerals (357523, 357593).  
Schmieder, Dr. Robert W.: 21 crustaceans; 525 worms (355566).  
Schneider, Vincent P.: 244 fossil vertebrates (358312, 360656).  
Schneider, Mr. & Mrs. Vincent P.: 5,260 fossil fish, reptile, bird, and mammal remains (357458); 3,370 fossil vertebrates (358256).  
Schultz, Dr. George A.: 11 crustaceans (356668).  
Scott, Dr. David: 6 fossils (358983, 361193).  
Scott, Dr. R. W.: 1 fossil (355854).  
Scott, Randy: 4 fossil seal portions; 2 teeth (357188).  
Scudder, Dr. G. G. E.: 29 true bugs (358114).  
Sheldon, Mrs. Alice Bradley: 25 ambers (356786).  
Sherman, Kevin: 14 worms (357879).  
Shipp, Dr. J. L.: 9 flies (358112).  
Shulley, J.: 1 fossil whale vertebra (355569).  
Simpson, Dr. Karl W.: 40 worms (356706).  
Skafer, Jeffrey: 1 mineral (357580).  
Smith, Anna M.: 1 fossil walrus skull (358344).  
Smith, Doris: 1 fossil tooth (358484).  
Smith, Dr. Julian P. S., III: 4 worms (358917).  
Smith, Larry: 1 sharks tooth (360126).  
Snyder, Dr. Scott W.: 3 fossil teeth (354783, 358988).  
Sobrevila, Claudia: 60 spiders (360339).



Soponis, Dr. Annela R.: 7 insect slides (359385).  
 Spangler, Dr. Paul: 10 crustaceans (318427).  
 Spry, Dr. Paul G.: 2 minerals (358402).  
 Squires, Dr. Hubert J.: 30 crustaceans (357889).  
 Sreenivasan, P. V.: 6 mollusks (355886).  
 Staines, Charles: 333 water beetles (359380).  
 Stanaland, Mrs. L. J.: 1 fish (357238).  
 Stark, Dr. William P.: 2 stoneflies (359383).  
 Starnes, Dr. Wayne: 8 crustaceans (356531).  
 Steadman, David W.: 1 mammal (353607).  
 Steiner, Warren: 7 butterflies (358074).  
 Stewart, Dr. K. W.: 3 stoneflies (361348).  
 Stewart, R. L.: 4 minerals (358433).  
 Steyskal, George C.: 44 insects (361541).  
 Stockwell, Henry P.: 6 weevils (359375); 159 ground beetles (358105).  
 Stolburg, Craig S.: 5 minerals (354693).  
 Struve, Dr. Wolfgang: 9 plaster casts of 3 brachiopods (357459).  
 Sturmer, Dr. W.: 8 fossils (356098).  
 Sullivan, Dr. Bolling: 2 crustaceans (358542).  
 Swanson, Fran: 1 pair of shark jaws (357212).  
 Swartz, Mrs. Ruth H.: 5,000 ostracodes (357877).  
 Swindell, Clyde: 171 fossil vertebrates (358237, 359258).  
 Tasch, Dr. Paul: 235 fossils (359855, 359931).  
 Taylor, Calvin E.: 9 fossil bird and pinnipeds (358221).  
 Taylor, Harold M.: 11 minerals (355894).  
 Taylor, Dr. Paul M.: 10,436 insects (359376).  
 Teichgraber, Dr. R.: 1 mineral (357578).  
 Tczap, Brenda: 1 fossil crustacean (358453).  
 ten Hove, Dr. Harry A.: 1 mollusk; 265 worms (357652).  
 Terrell, Dr. E. E.: 2 plants (357060).  
 Theokritoff, Dr. George: 23 trilobites (360535).  
 Thomas, Richard: 15 blind snakes (353824).  
 Thomasson, Joseph R.: 30 fossil miocene sedges (361257).  
 Thompson, Dr. John N.: 1 moth (358493).  
 Thompson, Dr. Lynn C.: 10 ground beetles (358113).  
 Tichenor, Harold W.: 1 fossil (360501).  
 Tillmanns, Dr. E.: 3 minerals (358350).  
 Titgen, Richard H.: 1 worm (360974).  
 Townsend, Dr. Forrest I., Jr.: 1 whale skull; 1 dolphin skull (357375).  
 Trauth, Stanley E.: 2 geckos (353802).  
 Trelawney, John J.: 1,590 minerals (325152).  
 Trinkaus, Dr. Erik: 6 casts of Neanderthal skeletons (358066).  
 Tucker, John K.: 10 mollusks (356681).  
 Turner, Mrs. Lillian: 1 jadeite bracelet (355931).  
 Turner, Dr. Ruth: 100 worms (308383).  
 Tutt, Mrs. Henry, III: 1 fossil seal vertebra (358223).  
 Ulmer, Dr. Gene C.: 35 igneous rocks and xenoliths (358406).  
 van Achterberg, Dr. Ing. C.: 4 insects (358122).  
 van Dyk, Marius F.: 1 mineral (358407).  
 van der Vecht, Dr. J.: 5 wasps (358107, exchange).  
 Van Dooren, Dr.: 1 mineral (358398, exchange).  
 Vardy, Dr. Colin: 2 insects (360953).  
 Vokes, Dr. Emily H.: 3 mollusks; 8 fossils (358452).  
 Wagner, Paula: 1 partial fossil seal postcanine (357876).  
 Walenta, Dr. Kurt: 6 minerals (357521, 358436).

Warwick, Dr. Richard M.: 30 worms (357023).  
Wass, Dr. Robin: 2 bryozoas (356683, 358911).  
Watkins, Dr. Rodney: 21 brachiopods; 3 latex pulls (359891).  
Watters, G. Thomas: 3 marine mollusks (359851).  
Weaver, Dr. John: 16 caddisflies (359378).  
Weems, Dr. Robert E.: 240 fossils (358345).  
Weir, Dugan R.: 3 opals (354664).  
Welzenbach, Michael: 1 fossil mackerel; 1 fossil drumfish (359233).  
Wemple, Peter: 2 turtles (356005).  
Werner, Tracey K.: 1 long-tailed weasel (350023).  
Westcott, Jim: 1 meteorite (357515).  
Wheeler, Dr. Walter H.: 1 fossil whale (354781).  
White, John Sampson: 1 mineral (360030).  
Whitney, Dr. Nathaniel R., Jr.: 1 grey owl; 1 grouse (355811).  
Wighton, Dennis C.: 1 fossil plant (360248).  
Wilbur, E. T.: 2 petrified woods (359259).  
Wilke, Dr. E. J.: 1 mineral (358384).  
Williams, Dr. James D.: 8 shrimps (358668).  
Williams, Margaret A.: 1 mollusk (360642).  
Wilson, David H., Estate of: 8,000 minerals (339767).  
Wilson, John: 1 fossil manatee tooth (358190).  
Wilson, Robin: 5 worms (360503).  
Winters, Mrs. Charles E.: 15 minerals (354673).  
Wolff, Dr. Jerry O.: 1 white-footed mouse (357403).  
Woodhead, Alfred B., III: 1 fossil (357442).  
Wright, Eugenia I.: 1,295 marine mollusks (355563).  
Yager, Jill: 3 shrimps (355725).  
Yntema, J.: 21 beetles (358079).  
Young, Dr. Frank N.: 1,011 water beetles (358080, 359388).  
Yount, Victor: 5 minerals (356797, 359305).  
Yuou-ren, Dr. Chen: 10 brachiopods (357018).  
Zeihen, Dr. Lester G.: 6 minerals (357534).  
Zibrowius, Dr. Helmut: 100 echinoderms (355872).  
Zimmerman, Dr. James R.: 6,800 beetles (361548).  
Zottoliu, Dr. Robert: 14 worms (355723).  
Zullo, Dr. Victor A.: 32 fossil barnacles (358944, 360698)

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## NATIONAL MUSEUM OF AMERICAN HISTORY

### *Donors to the Collection*

- 3M Company (through R. L. Johnson): 2 keychains with samples of Tartan brand track-surfacing material attached and a sample mounted on hard-board (1983.0319).  
 Ita Aber: embroidered Passover matzo cover, ca. 1935, and a pillowcase cut down in 1950 from a tablecloth made by Tess Eichler Aber in 1922 (1983.0892); embroidered cover for a Passover matzo box signed "Ita 1974" (1984.0025); Jewish wedding canopy made by Ita Aber, 1980 (1984.0163).  
 Anne E. and Ronald D. Abramson: black and red "reeded" glass bowl titled *1st Survivor* made in New York by Mary Ann Hall, also known as "Toots Zynsky," 1981 (1981.0699).  
 Anne E. and Ronald Abramson, Mrs. Charles Carroll, Jean S. and John Michael, Elmerina L. and Dr. Paul D. Parkman, Samuel J. Rosenfeld, and Anne and Jack Ryan: glass "prism cut" vase made by Tom McGlauchlin, 1981 (1982.0189).  
 Acousticon: 43 hearing aids, 1902-68 (1978.0328).  
 Dr. Willis A. Adcock: Regency model TR-1 pocket transistor radio (1984.0040).

- Hartwig M. Adler, M.D.: microtherm unit, cameron unit, central field projector and screen, bipolar cautery, ultraviolet light, and a box of eye instruments (1980.0363).
- Rita J. Adrosko: 8 curtain pins and 2 baby carriage blanket clips, ca. 1930 (1984.0177); 3 prayer cards, 2 photographs, a prayer book *The Shield of Faith: Reflections and Prayers for Wartime*, and a book *New Testament: Roman Catholic Version* (1984.0404); glass-covered cocktail tray with patent date of August 3, 1926, and an aluminum cooking pot marked "Majestic Cook-Ware," ca. 1927 (1984.0405).
- Richard E. Ahlborn: "Bowman" patch archery award, 1944, and a ticket for the Cracker Jack Old Timers Baseball Game held at RFK stadium, July 19, 1982 (1983.0530).
- Government of Aitutaki, Post Office, Philatelic Branch: 12 souvenir sheets and 6 first-day covers of Aitutaki (1983.0336); 3 mint stamps and a first-day cover of Aitutaki (1984.0257).
- W. Albersheim: studio view camera with stand and accessories (1984.0401).
- John W. Aldrich: red earthenware ring jug with white slip under clear glaze inscribed "Seth Aldrich," possibly 19th century (1982.0812).
- Alenco Corporation (through Jerry Allman): 3 display boards of electronic watch components (1984.0093).
- Albert (Johnny) and Raymond C. Altieri: bellhop uniform jacket, pants, and cap used by Albert (Johnny) Altieri in his public relations role as "Johnny Morris, Jr." with the Philip Morris Company, 1935-82, and 5 advertising signs featuring "Johnny" (1983.0391).
- American Greetings Corporation (through Joy Sweeney): 23 Christmas greeting cards, 13 seals, 4 pictures, 3 printed messages, and a brochure, all made for presidents and other government officials, 1960s and 1970s (1983.0593).
- The American University, Office of Continuing Education, Campaign Management Institute (through Paul David Munger): program and flyer about the 1984 election season (1984.0214).
- Donald W. Amstutz: envelope of 72 *cartes de visite* (1983.0837).
- Dorothy May Anderson: album containing name cards, acknowledgment cards, greeting cards, advertising cards, a bookmark, and a card of 68 needles and a threader, 19th century (1983.0411).
- George Aneiro: parchment diploma from Harvard University awarding a Bachelor of Arts degree to Robert Hebert Terrell in 1884, mounted in wooden frame, ca. 1890 (1984.0287).
- Anonymous: photograph of the "Rockville Bridge, Pennsylvania Railroad" (1982.0672).
- Government of Antigua, Barbuda Dependency, Barbuda Post Office, Philatelic Bureau: 119 mint stamps and first-day covers of Barbuda (1984.0260).
- Arena Stage (through Mary Ann Powell): 6 women's dresses, a 2-piece suit, mantle, and a jacket, all late 19th to early 20th century (1981.0023).
- Government of Argentina, Postal Administration: 242 mint stamps and souvenir sheets of Argentina (1984.0258).
- Willy Arnheim: 17 stone anchors, dowels, and bolts used during construction of the National Museum of American History building, 1961-64 (1984.0125).
- Dr. Joseph and Rochelle D. Aschheim: poster of South Vietnam depicting the voting process in six drawings, 1967 (1983.0583); lacquered wedding photograph album from Saigon, South Vietnam, 1960s (1983.0815).
- Rochelle D. Aschheim: button kit for "The Self-Adjusting Patent Boot Buttons," 1875-1925, and a box of "Regalia White Lace Collar Supports for Gentlewomen," 1890-1915 (1982.0650).
- Horst Augustinovic: first-day cover commemorating the 50th anniversary of air mail service to Bermuda, issued April 28, 1975 (1983.0526).

- Reserve Bank of Australia (through A. H. Wilson): Australian \$100 note numbered 350, first issued on March 26, 1984 (1984.0519).
- Auto-Bus, Inc. (through Robert E. White): school bus window broken during desegregation violence in Boston, 1974 (1983.0457).
- B & M Sales and Service, Inc. (through Robert J. Odee and Michael J. Rosa): Atco taximeter, ca. 1930 (1983.0503).
- Wilfred E. Babcock, Estate of (through John J. Laffey): 6 letters and a telegram from Frances F. Cleveland to Mrs. E. M. Bacon dated 1905-7 and an envelope addressed to Mrs. Grover Cleveland (1983.0478).
- Bernice Baer: plastic penlight flashlight with inscription "American Women 1963, 1983, 2003" (1983.0594).
- Brian M. Bailey: red and black plastic "Mouseguitar," ca. 1957 (1984.0031).
- Betty B. Baker: campaign button from Louisiana with slogan "J'aime Ike" (1984.0137).
- Susan Harriet Baker in memory of Robert H. Baker: Harrington & Richardson revolver, P. Berretta semi-automatic pistol with 2 magazines, and an officer's garrison cap (1983.0875).
- Government of the People's Republic of Bangladesh, Ministry of Posts (through Mayeedul Islam): 15 mint stamps and a first-day cover of the People's Republic of Bangladesh (1984.0259).
- M. Elizabeth Barger: duckpin, ca. 1930, duckpin ball, ca. 1950, trophy won by Ms. Barger, 1953-54, and a bowling shirt which belonged to David Volk, 1961 (1984.0200).
- La Vita Barnett: *American Definition Spelling Book* by Abner Kneeland, 1809 (1983.0563); Dowmetal cigarette roller and a book of Zig-zag cigarette paper (1983.0610).
- Laura L. Barnhart: 2-piece gym suit worn by Ms. Barnhart at Towson High School, Maryland, 1977-80 (1983.0690).
- Ann I. Barone: pair of white canvas bathing shoes with black binding, metal eyelets, and laces, 1910-20 (1984.0038).
- Helen Lawrence Barr: 3 model steam engines constructed by Sven John Lawrence (1984.0194).
- Mary E. Bartelmes: banner made in Upper Volta with wording in French concerning the International Women's Year of 1975 (1983.0846).
- Jeanne M. and Preston R. Bassett: 3½-hour sandglass timepiece used in a Swiss monastery (1984.0065).
- Bruce S. Bazelon: 14 reproduction and replica 18th- and 19th-century buttons (1983.0890).
- Joyce Becker's Soap Opera Festivals (through Joyce Becker and Allan Sugarman): 6 Soap Opera Festivals posters from throughout the U.S. (1983.0726).
- Paul P. Becker: "Piccolino" gown designed by Bernard Newman and worn by Ginger Rogers in the RKO film *Top Hat*, 1935 (1984.0434).
- Dr. Paul Bedoukian: medal commemorating the consecration of St. Vartan Armenian Church in New York City (1978.2496).
- Burk E. Beerli: safe used by the post office at "Little America, South Pole" by Admiral Byrd's second expedition, 1935 (1984.0015).
- Henry S. Belden III and Margaret D. Belden: first inaugural ball gown worn by Mrs. William McKinley, top hat and derby hat worn by President McKinley, and a baby shawl made for the McKinley daughters (1983.0889).
- Don Bell: nylon rope, a pair of silver spurs, and a pair of leather cowboy boots used by Mr. Bell during his career as a rodeo rider and range cowboy (1984.0253).
- Archbishop Bergan Mercy Hospital (through Elizabeth G. Cambridge, R.N. and Becky Gunthert, R.N.): Gomco Surgical Company electric breast pump with 10 nipple shields and 2 glass bottles, ca. 1947 (1982.0450).

- Maurice H. Berlin: Aman plastic bugle made for use by the U.S. Army during World War II (1983.0622).
- Ronald D. Berman: empty soda can of the "American Bicentennial Patriot Series 1776-1976" with a picture of John Jay (1984.0136).
- Bethlehem Steel Corporation, Lackawanna Plant, Department of Plant Engineering (through Jerry Soltis): last blast furnace cast of pig iron and the last basic oxygen furnace heat sample of steel produced at the Lackawanna Plant in October 1983 (1983.0887).
- Billie Billing: Joss cue stick given to Ms. Billing for producing and promoting the first Women's Professional Billiard Alliance tournament in August 1977, a chalk cube, and 3 posters (1983.0580).
- Countess Mona von Bismarck: 6 dresses, a jacket, and a 2-piece suit by Givenchy, 2 blouses by Emilio, a blouse by Chanel, 2 belts by Fortuny, a purse by Hermes, 3 hairpins, a bracelet, pair of earrings, and a ring (1981.0801).
- Richard Blackston: 11 decals, 10 bumper stickers, 7 banners, 6 posters, and 2 broadsides all relating to Republican campaigns (1983.0581).
- Mel Blanc: 7 animation cells of Mel Blanc's most famous voice characters, 4 posters from Warner Bros. movies, 3 Mel Blanc phonorecords, 2 talking Bugs Bunny dolls, a Bugs Bunny clock, Bugs Bunny toy telephone, and a talking Tweety Bird bank (1983.0555).
- Charles A. Blank: globe "Gold Medal" accordian with case made in Germany, ca. 1930 (1983.0588).
- A. R. Bonorden: 4 electric gas lamp igniters (1983.0756).
- Mrs. Gertrude (Arthur L.) Bostedt: Disabled American Veterans uniform worn by Arthur Bostedt consisting of a blue wool jacket with DAV pins on lapels, pants, hat, and a yellow tie, 1930s-40s (1984.0440).
- Marguerite Z. Bottorff (through William Gundlach): 5 programs of the NBC orchestra conducted by Arturo Toscanini, 4 bound musical scores, and 2 flyers mounted on a card (1983.0549).
- Robert D. Bowser: map of the March 4, 1889, inaugural parade route and a business calling card from the National Mosaic Co., Inc. (1984.0377).
- Helen King Boyer: 85 prints and sketches, 11 greeting cards and bookplates, 3 aluminum plates executed in dry point, and 2 sketch books by Louise M. Boyer, 57 prints and sketches by Helen King Boyer, and 16 prints and drawings by Ernest W. Boyer (1984.0338).
- Mrs. Charles R. Brady: red plastic University of Arkansas "Razorback" hog helmet, ca. 1977 (1984.0104).
- William G. Brandt and Bill Dietze: book *Lincoln Campaign Songster, 1864* (1984.0216).
- Todd M. Brennan: 162 trading cards, 4 dolls, 2 bottles of hair conditioner, 2 T-shirts, and a pillow case relating to the television series "Charlie's Angels" (1984.0495).
- Helene Bress: spool rack with 4 spools, 6-arm reel, squirrel swift, and a flax brake all used in 3-yarn processing (1983.0807).
- British Information Services (through P. Beckingham): videotape cassette of British political campaign advertisements (1983.0672).
- Claudia Kyle Brush: folding umbrella-style canvas tent with stakes and poles, ca. 1925 (1983.0392).
- Dr. Ruth Dowling Bruun: Stanley "Steamer" model 60 roadster, 1910 (1982.0417).
- Ervin T. Bullard, Mary B. Duncan, Agnes B. Maglin, and Dorothy J. Stewart: Bausch and Lomb microscope (1978.0982).
- Helen Duprey Bullock: life portrait of Thomas Jefferson drawn in 1804 by Fevret de Saint-Memin (1983.0600).

- Bulova Watch Company, Inc. (through Benjamin Matz): 8 Bulova watch heads (1984.0096).
- John S. Burgess: pair of black rubber Khmer Rouge sandals from Aranya-pratet, Thailand, 1980 (1983.0765).
- Helen Burner: 2 cards, 2 medals, a bonnet, hatchet, belt, coat, pair of pants, envelope, and a booklet, all used by Otto Fischer as a member of the Order of Red Men (1984.0312).
- Carol Burnett: charwoman costume worn by Ms. Burnett on various television and theater programs (1984.0223).
- 2d Lt. Richard B. Burns: 3 shirts of Soviet and Cuban manufacture and 2 shovel covers of East German manufacture taken during U.S. military action on the Island of Grenada in 1983 (1984.0414).
- Wayne E. Busbice: 2 phonorecords of bluegrass artist Buzz Busby (1983.0893).
- Frank B. Bushey: 2 booklets about Buffalo Bill's Wild West Show, 1907-8, and 2 booklets about the King Brothers Circus, 1951-52 (1984.0042).
- Iva M. Bushman: armor mounted on a plaque and a metal chain used by Francis X. Bushman as "Messala" in the 1926 motion picture *Ben Hur*, an oil portrait of Mr. Bushman wearing the armor, and a painting of the movie's chariot race scene (1983.0564).
- CBS/Fox Studios (through Robert W. Norvet): brown felt Stetson hat worn by James Arness as "Matt Dillon" on the television series "Gunsmoke" (1983.0687).
- Leopoldo Cancio: 6 bonds and certificates issued by the International Bank of Reconstruction and Development and the World Bank (1983.0446); bronze coin struck at the recently discovered mint of Pedasa in the Ionian Province of Asia Minor, 3rd or 2nd century B.C. (1984.0460); 2 specimen registered bond certificates, 1982 (1984.0462).
- Dr. Edward W. and Irene E. Cannon: 15 reproducing piano rolls by Ampico (1983.0589).
- Rev. Howard W. Carroll on behalf of the Carroll Family: cover with letter carried by U.S. Navy seaplane N.C.-4 from Halifax, Nova Scotia across the Atlantic Ocean to the Azores in May 1919 (1982.0681).
- David C. Carruth in memory of Mildred Carruth: 4 necklaces, 4 pairs of earrings, a set of 2 buckles, a bracelet, and a brooch, all mid-20th century (1983.0384).
- Harold D. Carter: Hall Braille writer, ca. 1910, and a Marburg German language Braille writer, ca. 1960 (1984.0240).
- John F. Cataldi: stained glass window in metal frame of Gothic arch design possibly made by Frank & Co., New York, late 19th to early 20th century (1981.1001).
- Catholics Act for Equal Rights Amendment (through Maureen Fiedler): 4 flyers, 3 letters, 2 envelopes, and 2 membership forms concerning women's rights (1982.0415).
- Rafael Cepeda Atilas: 2 *pandereta* tambourines made by Jesus Cepeda in 1983, a *bomba* drum made in 1954, and a rasp and scraper, ca. 1982 (1983.0686).
- James F. Channing: commemorative Centennial cotton bandana with a black leather presentation case, 1876 (1984.0073).
- Eloise D. and John W. Charlton: leather case containing 96 glass stereo transparencies and negatives by Albert Noel (1983.0785).
- Marie Cheatham: black straw mourning hat and a pair of scissors used by Ms. Cheatham as "Stephanie Wyatt" on daytime television series "Search For Tomorrow" (1984.0199).
- Government of the Republic of China, Postal Administration (through the Director General of Posts): 435 postage stamps, 131 specimen stamps, 65

- first-day covers, 14 souvenir sheets, and 8 covers of the Republic of China (1984.0261).
- Elvira Clain-Stefanelli: hybrid *aureus* of the Roman Emperor Antoninus Pius (1979.1252); 96 silver and bronze commemorative medals (1980.0943); 2 steel dies with cast bronze inserts for striking counterfeit silver *staters* from Tarentum in Calabria, 302–281 B.C. (1981.1063); 4 steel dies for striking counterfeit gold coins from Populonia, Etruria, 450–350 B.C. (1981.1064); 2 steel dies with cast bronze inserts for striking counterfeit *solidi* in the name of Aelia Zenonis, wife of Emperor Basiliscus, A.D. 475–476 (1981.1065); 2 steel dies with copper inserts for striking counterfeit gold half *staters* of Tarentum, 340–334 B.C. (1981.1066); 2 steel dies with cast bronze inserts for striking counterfeit silver *octadrachms* of King Ptolemy I of Egypt, 323–285 B.C. (1981.1067); 2 German and Greek commemorative medals, a Russian badge, and a French art medal (1983.0436).
- V. Clain-Stefanelli: 2 dies with copper inserts for striking counterfeit silver *didrachms* of Himera, Sicily, 482–472 B.C. (1981.1057); 2 steel dies with cast bronze inserts for striking counterfeit *aurei* and *denarii* of Mark Antony and Octavius with the name Marcus Barbatius, ca. 41 B.C. (1981.1058); 2 dies with cast bronze inserts for striking a counterfeit *denarius* or “tribute penny” of Roman Emperor Tiberius, A.D. 14–37 (1981.1059); 2 steel dies with cast bronze inserts for striking counterfeit gold medallions of Queen Helena, mother of Constantine the Great, A.D. 307–337 (1981.1060); 4 steel dies for striking counterfeit gold coins from Populonia in Etruria, 450–350 B.C. (1981.1061); 2 steel dies with copper inserts for striking counterfeit silver *staters* from Tarentum in Calabria, ca. 375 B.C. (1981.1062).
- J. F. Gates Clarke: 29 teapots and 2 sugar bowls illustrated with “Rebekah at the Well” scene, 6 molded earthenware pitchers, and 2 12-paneled teapots, all 19th century American (1981.0134).
- Thomas P. Cocke: woman’s pink silk dress with skirt, 2 bodices, and trimmings, 1880–90 (1980.0872).
- Barbara J. Coffee: bridge tally in the shape of a hatchet (1983.0119).
- William H. Cohrs and John Steele: wooden bowl from the propeller steamer *Vernon* which foundered in Lake Michigan on October 29, 1887 (1983.0496).
- Coin World* (through Margo Russell): 8 bronze medals commemorating the U.S. mints issued by *Coin World* newspaper (1984.0461).
- Pearl B. Cole: 7 buttons and 2 pins from political campaigns (1984.0447).
- College, U.S.A. (through Kerry H. Stowell): publicity poster for the animated film *I Go Pogo* (1983.0554).
- Government of the Republic of Colombia, Postal Administration: 92 first-day covers and 2 presentation folders of Colombia (1984.0262).
- Colorado Railroad Historical Foundation, Inc., Colorado Railroad Museum (through Robert W. Richardson): harp-style switch stand of the Denver & Rio Grande Railway, ca. 1880 (1982.0521).
- Aileen Harris Conkey: black and white photograph of President Truman decorating General Eisenhower with the Congressional Medal of Honor (1984.0021).
- Government of the Cook Islands, Ministry of Posts, Post Office, Philatelic Bureau: 37 postage stamps, 22 souvenir sheets, and 15 first-day covers of the Cook Islands (1984.0263).
- John Cook: bronze medal designed by Mr. Cook for the U.S. delegation of the 1983 Federation Internationale de la Medaille Congress in Florence, Italy (1983.0675).
- Gisela S. Cooke: used cover with Amelia Earhart label, 1948 (1983.0362).

- Diane M. Cornell: pillow with picture and signature of Franklin D. Roosevelt (1983.0500).
- Cracker Jack Old Timers Baseball Classic (through Larry Moffi): 2 programs and 2 posters from the 1982 and 1983 games and a baseball and ticket from the 1983 annual game (1984.0229).
- Government of Cuba, Minister of Communications, Philatelic Services: 49 stamps, 23 first-day covers, a souvenir sheet, and a mini sheet all of Cuba (1984.0264).
- C. E. Curtis: polychrome pieced-work wool bed cover made by Jewett W. Curtis, 1889–93 (1984.0406).
- Government of the Republic of Cyprus, The Director of the Department of Postal Services, Ministry of Communications and Works: 2 mint specimen stamps "Europa 83" (1983.0369); General Post Office, Philatelic Service: 121 stamps and first-day covers of the Republic of Cyprus (1984.0265).
- Government of the Turkish Federated State of Cyprus, Director of the Postal Department: 85 mint stamps, 21 first-day covers, 2 souvenir sheets, 2 commemorative mailing labels, and a post card with first day cancellation all of the Turkish Federated State of Cyprus (1984.0266).
- Gail B. Dalmat: 3 posters, 2 bumper stickers, a sticker, and a balloon concerning women's rights, Senator Sarbanes, and jobs for Americans (1982.0593).
- Rep. Tom Daschle: 50-star U.S. flag adorned with eagle claws, feathers, and native American beadwork (1983.0324).
- Diane V. Daum, M.D.: political button "Elect Marty VINIKOOR City Council Republican" (1984.0131).
- Jim Davis: original drawing and proof for the first "Garfield" comic strip by Jim Davis for United Feature Syndicate, Inc., 1978 (1983.0480).
- Joy Powell Davis: embroidered and applied wool quilt top signed and dated "Frances M Jolly 1839" (1983.0241).
- Martha B. Davis: 4 dishes, 2 dresser bottles with stoppers, a bowl, and a creamer and sugar bowl of cut lead glass and a "book" flask of non-lead cut glass with silver cap, all 1900–20 (1983.0195).
- Edith Joy Dawson: photograph of Eleanor Roosevelt with American military personnel, September 1943 (1984.0395).
- L. F. Deardorff & Sons, Inc. (through Merle S. Deardorff): Deardorff camera with carrying case and lenses, a view camera, Zeiss lens, and a Meyer double plasmat lens (1984.0045).
- Mary A. DeLaurier: "Champion of Champions" belt presented to John L. Sullivan as the last heavyweight bare-knuckles boxing champion on July 4, 1887, and a wooden case (1983.0401).
- Don Dellair and Tommy Wonder 123: 2 red velvet jackets studded with glass beads and 2 pieces of sheet music (1983.0070).
- Dorothy Norton Denecke and Frederick Whitney Denecke in memory of Helen Marie and James Patrick Norton: Peerless "pail-a-day" hot water supply boiler manufactured by the Eastern Foundry Co., ca. 1920 (1984.0178).
- M. G. Detweiler: Leica camera in leather case with accessories (1983.0793).
- Ruth Freeman Dickinson: engraving of John Dickinson and a letter of authorization and a payment authorization both signed by John Dickinson (1984.0221).
- Eddie Dimond: 62-button concertina made by inventor C. Wheatstone of London, early 20th century (1981.0778).
- Eileen K. Dodd: woman's 2-piece suit designed by Christian Dior of Paris, France, 1960–65 (1982.0581).

- Robert "Bo" Donly: bumper sticker "Re-Elect 'Bo' DONLY for Dania . . ." (1984.0222).
- Ann Hysa Dorfsman: ribbon sash from the National ERA March in Chicago, Illinois on May 10, 1980 (1983.0590).
- John R. Doss: 267 ancient Greek bronze coins and medallions of Cilicia (1979.0703).
- Gladys C. Dougherty: 5 phonorecords, a 2-deck card set, and a "Coca-Cola" cribbage board (1983.0117); white metal lime squeezer, lid opener, bottle opener, punch can opener, tongs, and a lemon twist peeler (1984.0107); 13 phonograph records in 8 record albums (1984.0134).
- Jean T. Downs: magazine insert about the John Birch Society, ca. 1963 (1983.0585).
- Lawrence Drake and M. G. Drysdale: 6 candleshades with cast metal ornaments, 3 clear mica candleshades, a pair of metal candleshades with 6 liners, and a pair of pink silk candleshades in their original boxes (1983.0371).
- J. Harry DuBois: 110 historical plastic artifacts (1983.0538); 32 18th- through 20th-century plastic artifacts (1983.0626); 20 bakelite and plastic artifacts, early 20th century (1984.0138); 19 artifacts of molded and cast bakelite, resin, nylon, and urea plastics (1984.0410).
- Duke University, William R. Perkins Library, Manuscript Department (through Ellen G. Gartrell): 7 swatches of printed cotton fabric found in the ledger of a general store in Yadkin County, North Carolina, 1850-60 (1983.0312).
- Robert Duphorne: 3 U.S. financial documents (1983.0575).
- E. I. du Pont de Nemours & Company, Incorporated (through C. R. Burt and Kenneth M. Smith): DeVry 35-mm motion picture news reel camera in case (1983.0223); Central Research & Development Department, Experimental Station (through D. E. Arch); automatic photometer (1983.0523).
- Mr. and Mrs. Ernest du Pont: 2 refined earthenware portrait busts, one inscribed "Washington" and the other "Old English Gentleman," Staffordshire, England, 19th century (1982.0549).
- June W. Echols: brown Rockingham-glazed ceramic pitcher with portrait busts of President James A. Garfield, ca. 1881 (1981.0626).
- Carl Ek: 5 cut glass plates, a cut glass dish, cut and engraved glass bowl, cut glass covered sugar bowl with "pillar" rib and fan pattern, blown glass covered compote, three-quarter whisky tumbler with engraved floral decorations and the initials "WC," and a "craquelle" glass covered jar with gilt and green snake decoration, all 19th century (1982.0501).
- Harold W. Ellis: 7 posters, 2 flyers, 2 brochures, a newspaper, official program, pamphlet, map, and a button, all from the 20th anniversary "March on Washington," August 27, 1983 (1983.0545).
- Margaret Northcross Ellis, Madison E. Mayre, Elizabeth B. and Julia Ellis Robinson, and Tyler Robinson Stuart: white chiffon crepe dress worn by Julia Gardiner Tyler when presented at the Court of Louis Philippe, ca. 1843 (1984.0491).
- Mrs. Robert B. Ellison: medical examination chair (1980.0355).
- Dorothy Olcott Elsmith: 5 boxes containing wooden trays of glass stereo slides, a wooden Taxiphote stereo viewer, and a stereo hand viewer (1984.0044).
- Lt. Col. William K. Emerson: 19 chevron insignia, late 19th century (1983.0509); 6 enlisted-rank collar insignia manufactured in Germany, 1950s (1984.0148).



- Evan-Picone Fashion Studio (through Frank R. Smith): ruler, square, tape measure, grader, weight, and needlepoint pattern tracer, all mid-20th century (1982.0015).
- Sarah Eveleth Antiques (through Sarah C. Hansen): porcelain teabowl and saucer from Nyon, Switzerland, early 19th century (1982.0427).
- Dr. Mabel R. Farson: gold pocket watch marked "Jean Hendrik Kuehn, A. Amsterdam," ca. 1800 (1982.0302).
- Henning Fernstrom 2nd: souvenir stamp case with a booklet of 12 2-cent U.S. postage stamps commemorating President William McKinley's second inauguration on March 3, 1901 (1984.0028).
- Marabeth S. Finn: pair of woman's high-heeled pumps made of Corfam synthetic leather (1983.0623).
- Charles P. Fisher: bass viol made in New England in the late 18th century (1983.0633).
- Shelly J. Foote: wooden darning egg with handle (1984.0180).
- Elsie B. Ford: 2 officer's collar insignia of the Corps of Engineers, World War II (1984.0145).
- Alice Woodson Forester: glass vase titled *Fantasy Vessel* made by David R. Huchthausen, 1977 (1982.0419).
- Jacqueline Fowler: woman's chemise, 1800-50 (1982.0526).
- Dauphine and Patricia A. Frame: box of 110 *cartes de visite*, tintypes, cabinet prints, and oval prints, all late 19th and early 20th centuries (1983.0376).
- The Franklin Mint: 5 bank notes from Botswana and 3 bank notes from the Solomon Islands (1981.0637); 2 silver medals from the "History of the United States" series (1983.0680).
- Kurt Fredriksson: 4 sheets of 160 Vatican City stamps commemorating Pope Paul VI's visit to New York in 1965 (1984.0116).
- Helen-Marie Fruth: lead glass chocolate pot and cover with engraved Chinoiserie decoration, probably of 19-century English manufacture (1983.0305).
- Frederick C. Gaede: reproduction of a Civil War blanket (1984.0311).
- D. L. Ganz: 6-piece process set of official Hawaiian statehood medals, 1959 (1979.1242); gilt presentation medal of Pope Leo XIII designed by F. Bianchi, 1879 (1984.0002).
- Paul V. Gardner: polychrome millifiori plaque made by Mr. Gardner while an assistant to Frederick Carder at Steuben Glass Works, ca. 1930 (1983.0811).
- Mary Potter Garrett: James K. Polk silver Indian peace medal (1984.0003).
- Carl W. Gatter: 2 velvet carpet fragments and a matching border strip from the Parry House, Wyncote, Pennsylvania, 19th century (1982.0061).
- Jane K. and John E. Gehring: dark blue cobalt glass bottle and stopper titled *Ancient Plum Blossom Tree Bottle* made by John F. Nygren of Walnut Cove, North Carolina, February 15, 1980 (1982.0811).
- General Electric Company (through Guido DiGrigorio and Kenneth J. Higgins): Burgmaster drilling machine and a General Electric Mark II numerical control unit adapted to function with the drilling machine, ca. 1958 (1982.0674); (through George Wise): 4 comic books about light, space, electronics, and jet power (1983.0671).
- Edward J. Gentsch in memory of Hugo E. Gentsch: 16 woodworking and metalworking drill bits used by Hugo Gentsch to train machinists during World War II (1982.0607).
- Estate of Wilma L. Gerber (through Truman N. Case): U.S. government thrift card with 4 25-cent thrift stamps attached, issued to Ms. Gerber in 1918 (1983.0429).
- Sylvia M. and William Gersch: miniature teapot, teabowl and saucer, a pear-

- shaped cream piacher, and a blue jasper cup, all late-18th-century ceramics and a "Lord Nelson" portrait tankard, egg-shaped tankard, simulated copper glazed jug, unglazed mortar and pestle, pink lusterware teabowl and saucer, and a covered box, all 19th-century ceramics (1982.0808).
- Barry, M., and Robin Gibb: 3 sets of costumes worn by the BeeGees during their 1979 concert tour and 17 phonorecords (1983.0781).
- Madeleine R. and Sidney Gleason: silk commemorative menu from a dinner to celebrate the 79th anniversary of the American Declaration of Independence held in Melbourne, Australia, 1855 (1984.0439).
- Sen. John Glenn: videotape cassette from the Glenn for President campaign titled "Believe in the Future Again" (1983.0773).
- Dorothy T. and Steve Globus: 5 glass-decorated metal curtain pins, ca. 1930 (1984.0176).
- Mrs. Rachel M. Goetz: decorated ostrich egg commemorating the 1956 presidential campaign of Adlai E. Stevenson (1984.0129).
- Ira M. and Lawrence S. Goldberg: 117 California gold coins (1981.0498).
- Jose C. Gomez: charro-type Mexican saddle with a pair of spur straps, strap with end loops, machete in scabbard, and a breast band, 1972 (1984.0456).
- James M. Goode: green painted hand-carved wooden window cornice, 1825-60 (1984.0341).
- Mack L. Graham: glass vessel decorated with 4 blue-green and red butterflies made by Mark Peiser, 1973 (1982.0810).
- L. Gramberg: engraving titled *The Exhibition* and an engraved plate for printing *From the Bridge*, both by Liliana Gramberg (1983.0709).
- Juanita Gray: 2 costumes worn by Mrs. Gray while a rodeo trick rider (1983.0346).
- The Greater New York Conference on Soviet Jewry (through Carolyn Greene): 2 T-shirts "Speak Out For Those Who Can't" and "Run March For Soviet Jewry" (1983.0597).
- Ralph Greenhill: photograph of John Roebling's Allegheny River Bridge at Pittsburgh, 1859-60, and an advertising card from the H. & F. Blandy Steam Engine Works at Zanesville, Ohio, ca. 1876 (1983.0891).
- Nicholas Grossman: Carl Zeiss and Jena "zieldosechs" rifle telescope (1983.0614).
- Grove Corporation (through Philip K. Edwards): Grove medical orthoprobe (1984.0036).
- Algirdas Gustaitis: 2 covers commemorating the 50th anniversary of the transatlantic flight by Stephen Darius and Stanley Girenas in 1933 (1984.0079).
- Beth A. Hager: red metal button with slogan "I don't bowl . . . and I keep my figure!" (1983.0573).
- Doris Williams Hailey: 2 books *Congressional Vest-Pocket Directory and Platforms of the Two Great Political Parties, 1856-1912* by Senator Joseph L. Bristow (1984.0236).
- Conrad S. Ham: 3 surveyor's transits, 2 surveyor's compasses, surveyor's chain, wye level, Burt solar compass, and an Astro solar compass (1983.0548).
- Faye J. Hamilton: blood transfusion bottle, early 20th century (1984.0547).
- William G. Hamilton: home-crafted hand-operated drill press (1983.0857).
- Frances Miller Hanover: manuscript about Dr. Dayton C. Miller and an x-ray photograph of Dr. Miller (312613).
- Florence E. Hardwick: black lace shawl in shape of butterfly wings made for the wife of President Benjamin Harrison (1984.0083).
- Hart Schaffner and Marx (through Robert G. Connors): 18 suit jackets showing variety of sizes manufactured in 1974 (1979.0883).

- Harvard University, Department of Physics, Gordon McKay Lab: 2 labial organ pipes (322616).
- Herbert H. Harwood, Jr.: 4 floor plans, a cross section, and a rendering of the facade of, possibly, the New York Central Railroad station at Syracuse, ca. 1930 (1983.0854).
- Robert Hauser: wood engraving of a paper marbler's workshop and a book titled *American Decorative Papermakers*, 1983 (1983.0880).
- Helen M. and Werner K. Hausmann: 139 ancient Jewish bronze coins (1983.0453).
- Haverford College (through G. Holger Hansen): 14 19th-century astrophysical instruments (1981.0745).
- Clayton R. Hawkins: baseball autographed by members of Washington Senators baseball team, 1924, and a souvenir booklet *World Series, 1924* (1984.0201).
- Jerry Hawkins: phonorecord titled "Lord I Was Born to Ride a Harley" by Jerry Hawkins (1983.0370).
- Eleanor R. and Province M. Henry: 48 19th-century glass objects manufactured in New England, Pittsburgh, and the Ohio area (1979.1262).
- Glenn S. Hensley: cast brass patent data plate from a Busch-Sultzer diesel engine, patents date 1895-1900 (1984.0010).
- Herder's Cutlery, Inc. (through Lynn H. Walker): 33 name punches, 9 scissors, 8 advertising objects, 6 buttonhole cutters, 6 miscellaneous hand tools, 4 sharpening and honing stones, 3 metalworking tools, 3 razors, 3 buttonhooks, 2 printing plates, a set of razor blades, razor case with stopper, crochet needle, lot of claim tagsfi ice skate, skate print block, and a stool all made or used by Herder's Cutlery, Inc., 19th-20th centuries (1983.0406).
- Bernard L. Herman: T-shirt with slogan "Give 'em an Inch and We Get Three Miles" made for the Great Washington Meltdown demonstration on May 6, 1979 (1983.0669).
- Leo Hershkowitz: 2 rubber bands, ca. 1844 (1983.0624).
- Hewlett-Packard Company, Desktop Computer Division (through Michael R. Radisich): 32-bit chip in a block of lucite (1984.0029).
- Marion A. Hickernell: pair of brown shoes worn by Louise M. Ayres on her wedding day, October 13, 1889 (1982.0448).
- Susan Hickmott: woman's dress designed by Claire McCardell, 1946 (1983.0243).
- Sheila B. Hoermann: deep amethyst transparent glass tumbler decorated with polychrome enamel coat-of-arms, beaded bands, and inscription, possibly made in Germany, 1850s-90s (1983.0812).
- Lawrence Hoes: handkerchief, black billfold, and a pair of silk lavender evening shoes (1983.0123).
- John N. Hoffman (through Rev. Dr. James B. Parsons): 5 patent model school desks, a patent model lawn seat patented in November 1873, and a patent model barber/dentist chair patented in June 1871 (1983.0508); folding armchair patent model, patent granted to George E. Whitmore of New Haven Folding Chair Co. on March 16, 1875 (1983.0642).
- Mrs. Hoge: Spencer microscope with 4 cover slides, a monocular in case with 3 objectives, 2 oculars, 2 bottles of immersion oil, a test tube holder, and a test tube (321702).
- Muriel C. Hoitsma: 82 phonograph records (1982.0613).
- David Holland: 7 panels and 2 racks from the first numerically controlled machine tool, developed at the Massachusetts Institute of Technology, 1949-52 (1983.0712).

- Prof. James C. Holland: photographs of a temporary rock crushing operation and a lumber mill yard of the late 19th century and a blast furnace and molding floor in Alabama, ca. 1900 (1984.0074).
- Prof. James C. and Mary G. Holland: albumen photograph of Litchfield's Granite Quarry in Fitchburg, Massachusetts (1983.0762).
- George B. and Nancy T. Holmes: autoharp by American Victor Harp Company with key, probably early 20th century (1983.0605).
- Stu Holzman: Johnson model D bus fare box, ca. 1949 (1983.0321).
- Herbert Hoover III: hip-length pale green satin cape with matching chiffon lining worn by Lou Henry Hoover (1983.0596).
- Dr. Richard H. Howland: photographic print of the Duchess of Kent, Princess Marina of Greece, by the photographer Cecil Beaton (1983.0834); bill of sale for furniture sold to C. A. Hubbard by Potter, Denison & Company in Providence, Rhode Island, December 9, 1868 (1984.0397).
- Debra M. and V. Bruce Hunt: blue denim infant's diaper covers designed by Calvin Klein and an infant's knit T-shirt with decal heart, both 1981 (1982.0585).
- Dora Pedery Hunt: bronze medal representing Erasmus of Rotterdam (1983.0632).
- R. Peter Hutchinson: 2 flour sacks concerning war relief embroidered by Stephanie Demeestere while a refugee from Belgium during World War I (1983.0220).
- Insilco Corporation (through Donald J. Harper and John J. Weber): 6-piece tea and coffee service, 4 open salts, 2 cake baskets, a coffee urn, butter dish, syrup pitcher with stand, fruit stand, jewel box, and a card receiver, all silver-plated, made by Meriden Britannia Co., ca. 1876 (1984.0424).
- Kathy Merlock Jackson: cowrie shell with carved inscription "Souvenir/Mother from/Galveston" (1984.0350).
- Jacques N. Jacobsen, Jr.: overseas cap and insignia patch from the Civilian Conservation Corps, ca. 1939 (1984.0385).
- Jacuzzi Whirlpool Bath (through Roy Jacuzzi): prototype and production models of the Jacuzzi Hydromassage whirlpool bath (1982.0121).
- Kurt Jaeger: German World War II 20 Reichsmark emergency bank note (1983.0574).
- James Industries Incorporated (through Betty M. James): "Slinky" spring toy used by the over-all winner of a charitable fund-raising contest in 1975 (1984.0182).
- Eric C. Jenkins: pair of shoes and rubber covers, 1898, excavated from Camp Alger, Virginia (1983.0015).
- Edward C. Johnson, O.D.: student's microtome (1984.0484).
- Col. William P. Jones, Jr.: 2 Brazilian "bull's eye" postage stamps, 1843 (1984.0080).
- W. J. Jung: "Washington" style hand press made by the Cincinnati Type Foundry (1983.0452).
- Albert E. Kane: telescopic revolving back Graflex camera with Zeiss, Mentor, and Ihagee lenses, 2 carrying cases, and accessories (1983.0423).
- Alvin R. and Marjorie S. Kantor: undivided 20 percent interest of the Benjamin Franklin General Post Office Account written entirely in Mr. Franklin's own hand and includes 8 of his signatures, 1770-72 (1982.0786).
- Alice A. and Aubrey F. Kelch, Jr.: 13 coronary artery bypass graft markers made of stainless spring steel (1983.0799).
- Dorothy E. Kellum: book *Poems by Yanks in Britain* written by members of the U.S. armed forces, 1942-45 (1983.0772).
- Mr. and Mrs. Gordon Kennedy, Sr.: 18th-century Windsor fanback chair and stretcher-based table and a 19th-century oblong wooden bowl (1983.0770).

- Roger G. Kennedy: reed organ made by Alexandre Pere et Fils of Paris, France, ca. 1898 (1983.0497).
- Paulette Kerstitch: jacquard woven silk portrait of J. M. Jacquard (1982.0311).
- Claudia B. Kidwell: freshman beanie worn by Richard Kidwell at the University of Maryland, 1956–60 (1983.0534).
- The Martin Luther King, Jr. Center for Nonviolent Social Change, Inc. (through D. Louise Cook): T-shirt with slogan "Jobs/Peace/Freedom" from the 20th anniversary "March on Washington," August 27, 1983 (1984.0205).
- Mrs. Leonard Kirby: flag with eagle and 13 stars on a shield (1984.0077).
- Miriam L. Kirkland: European red shawl with asymmetrical paisley design (1982.0368).
- Frank E. Klapthor: signed pen and ink drawing titled *Golf Girl* by Charles Dana Gibson (1983.0531).
- Dorothy L. Klausli: "Tekniklavier" practice keyboard instrument made by Mrs. A. M. Virgil, early 20th century (1983.0482).
- Hendrine Kleinjan: jacquard woven silk picture of the *Zurcherische Seidenwebschule 1881* (1980.0404).
- Ted Knight: blue blazer worn by Mr. Knight as "Ted Baxter" on "The Mary Tyler Moore Show" television series, 1972–77 (1983.0201).
- Janet Kogut in honor of Della Kogut: woman's yellow dress with fabric flower decorations, 1948 (1982.0618).
- Noelle Kominoth: T-shirt, shorts, shoes, and socks worn by Ms. Kominoth while playing elementary school soccer (1984.0347).
- Howard Koslow: etching of the Brooklyn Bridge by Howard Koslow, 1983 (1983.0855).
- Theodore A. Krieg: 14 brass pulleys, 9 brass and iron picture hooks, 3 decorated window shades designed by Frederick Krieg, and 2 nickel shade pulls (1983.0567).
- Cameron J. LaClair, Jr.: Philips radio receiver, model B3X98A (1983.0187).
- Gloria LaFay: 2 pairs of skis and a pair of ski boots on a stand (1983.0387).
- Mary Lily H. LaMar: letter from Eleanor Roosevelt to Mrs. James B. LaMar dated April 1, 1944 (1984.0444).
- Ruth J. Lambries: 2 letters, one from Anwar El-Sadat and the other from Mahmoud H. Abdel Nasser, written to Mrs. Lambries (1984.0085).
- Landes Manufacturing Company (through Martin R. Liebhold): 3 units of Northridge storage systems designed by Jerry Johnson in 1977 and made by Landes Manufacturing Company (1984.0102).
- John P. Langellier, Ph.D.: 2 pairs of shoulder knots, a cap insignia, helmet, and a coat, all of the Signal Corps, ca. 1890 (1983.0615); white summer helmet, kepi cover, leather gauntlets, and a pair of cavalry shoulder knots, all late 19th century (1984.0141); 2 bugle cords, 2 fatigue hats, a cap with shawl, shoulder knot, havelock, and a white cap (1984.0402).
- Lige H. Langston: braided rawhide quilt made by Leo Duarte, ca. 1970 (1984.0156).
- Gracie and Walter Lantz: 21 pieces of original art work from the first Woody Woodpecker cartoon titled *Knock, Knock*, 1940, 2 16-mm films, 2 videotape cassettes, and a wooden model of Woody Woodpecker (1982.0567).
- Benjamin T. Layton: Lord Elgin wrist watch (1984.0094).
- Jack LaZard, Jr.: serigraph *Roebbling's Dream Realized* by Otto Neals, 1983 (1984.0109).
- Edmond J. LeBreton: Christmas card signed "Tip O'Neill" (1983.0413).
- Estate of Adelaide Leier (through Eugene F. Behlen): 19 19th-century U.S. coins and 17 17th- through 19th-century foreign coins (1980.0986).

- Jane Lentz: 3 woman's felt hats and 2 pairs of stockings, 20th century (1982.0065).
- Erminia C. Leonardo (through Ercole Leonardo): 2 hand irons and an electric iron used by tailor Enrico Leonardo, 1910-49 (1982.0431); 10-piece American Legion uniform, 12 badges, 4 ribbons, 2 medals, a cuff link, tie pin, plate, and a flag-tenna from Ms. Leonardo's American Legion activities from the 1920s through the 1970s (1983.0516).
- Sara L. Lepman: 2 political banners and a poster from the campaigns of Thomas E. Dewey and Earl Warren (1983.0668).
- Hope Anthony Levy: 2 cotton towels, 2 lengths of ingrain carpeting, 2 coverlets, a tablecloth, piece of embroidered canvas, pair of sheap shears, and a brass name stencil, all 19th century, an 18th-century glazed wool quilt, a copy of Mrs. Levy's book *The Craft of Needlepoint*, and a proof sheet, work sampler, and stitch diagram used to make the book's cover design (1981.1020).
- Mrs. Stanley C. Lewis: Shaker-style dark red wool doll's cloak with cape collar and lined hood, early 20th century (1984.0175).
- David K. Lieberman: political button "NATIONAL War Fund SCHOOLS New York" (1984.0206).
- Robert Loeffler, M.D. and Vera Loeffler: glass sculpture of a 3-dimensional grid-like rectangular form made by Steven I. Weinberg, 1981 (1981.0964); glass vase titled *Aventurine Star* by Michael Glancy, 1982 (1982.0814).
- Charles T. G. Looney: aluminum tray, dish, and knife (1984.0394).
- George T. Lopez: cedar and cottonwood sculpture of San Rafael made by Mr. Lopez and dated February 10, 1982 (1983.0774).
- Jack Lord: 19 objects used by Jack Lord in the portrayal of the title character on the television series "Stoney Burke" and a poster of Mr. Lord's photograph used as a *TV Guide* cover (1984.0388).
- Lorimar (through Russel Goldsmith and Larry Hagman): hat worn by Larry Hagman as "J. R. Ewing" on the television series "Dallas," 1979-83 (1984.0193).
- Alice Tucker Lowe: pink satin cape worn to the Lincoln Inaugural Ball (1983.0661).
- Mrs. Marion Lund: 3 ophthalmoscopes (1983.0742).
- Kenneth Lynch (through Patricia A. Lynch): 8 axe handle patterns, 3 saw hammers, a horse collar mallet, shoe hammer, stake anvil, and a cooper's anvil (1983.0403).
- Roberta A. McAllister: 3 U.S. Army insignia and a pair of blousing bands, 1970s (1983.0357).
- M. Sgt. Charles W. McCann: 5-star Fleet Admiral's flag, 7-star commission pennant, and a photograph of the USS *Dauntless* with her crew, World War II (1983.0416).
- Patricia Hill McCloy and Kathryn Hill Meardon: appliqued and embroidered wool quilt titled *Solar System* and signed "E. H. Baker A.D. 1876" (1983.0618).
- Russell L. McLaughlin: "A Sound Mind in a Sound Body" health medal given by the Pittsburgh High Schools (1983.0204).
- A. W. MacLeod, M.R.C.V.S.: pair of field glasses made by T. W. Watson of London and a leather case, early 19th century (1983.0515).
- William McMillen: shoemaker's round knife (1983.0333).
- James Madison University, Physics Department (through James D. Lehman and Raymond A. Serway): educational seismic system sensor and illumination case built by James D. Lehman (1984.0017).
- Nadya Makovenyi: 15 phonorecords (1984.0004).

- Katheryn Dorflinger Manchee: cut glass vase and a vase with green glass casing made by Christian Dorflinger & Sons, ca. 1900 (1983.0288).
- Hessina Mann: lead glass vase decorated in a "Brilliant Period" cut pattern, 1900-17 (1982.0502).
- Marble Collectors' Society of America (through Claire W. and Stanley A. Block): 348 glass, ceramic, and stone marbles and 2 ceramic carpet balls (1981.0746).
- Francis Marion College, Francis Marion College Library (through Paul Dove): memento card from the memorial service of President James Abram Garfield (1983.0660).
- James E. Maros: Ronald McDonald, Mayor McCheese, and Big Mac dolls created by Mr. Maros, ca. 1968 (1983.0366).
- Elizabeth B. Martin: blue parasol, long white silk knit mitts, black lace mitts, widow's veil, and 2 mourning handkerchiefs all owned and used by Mrs. William McKinley (1983.0598).
- Alyce Maylard: 8-keyed boxwood flute made by Thomas Key of London, England in the early 19th century (1984.0339).
- Otto Mayr: electric "Booklite" lamp in original container, ca. 1953 (1983.0769).
- Medtronic, The Medtronic Archive on Electricity in Medicine and Biology (through Dennis Stillings): 3 slide sets titled *Myocardial Implant*, *Endocardial Unipolar*, and *Endocardial Bipolar*, ca. 1973 (306405).
- Herbert Melnick: \$50 note on the Citizens Bank of Louisiana at Shreveport (1980.0945).
- Darroll Ann Midgette: 2-piece gym suit worn by Ms. Midgette at State University College in New Paltz, New York, 1968-69, and a gym blouse worn by Flora Di Paolo Midgette, ca. 1923 (1983.0685).
- Charles W. Millard III: portfolio of 95 prints and photographs (1983.0838).
- George L. Miller: English earthenware muffin plate with black transfer printed image inscribed "The Potters' Art/Printing," mid-19th century (1982.0804).
- Stanley Millimet: field overcoat with liner, 1946 (1982.0690).
- Ruth H. Millington: 2,404 color transparencies, 99 prints, and miscellaneous publications, illustrations, correspondence, and ozalid prints all on the subject of covered bridges collected by Raymond E. Wilson, and a photograph of Mr. Wilson taken in 1912 (1984.0009).
- R. S. Moody: 100 pairs of spectacles and cases (317912).
- Charles Moravec: 52 phonograph records (1983.0822).
- Meyer Morse: U.S. Silver Center cent, 1792 (1981.1022).
- David L. Moser: Robinson templet odontograph used to mark and shape gear teeth, in original case with instruction booklet, ca. 1883 (1983.0353).
- Frances M. Rudell Moyer: 2 woman's brooches, a woman's cape, girl's bracelet, and a pair of infant's shoes, all early 20th century (1982.0456).
- William Mozey: New York State Militia cap plate, ca. 1825 (1983.0355).
- Ms. Foundation for Education and Communication, Inc., Ms. Magazine (through Patricia Carbine and Joanne Edgar): cover of Ms. magazine with feature story on Sally Ride, first U.S. woman astronaut, January 1983 (1984.0230).
- Wm. P. Mulvaney, M.D., F.A.C.S.: baseball autographed by Babe Ruth and Hank Aaron (1984.0479).
- Mrs. John H. Murray: woman's black dress with long net sleeves, 1969 (1982.0580); 11 examples of pewterware, set of 20 pieces of chrome-plated nickel-silver flatware, and a miniature brass and wood bedwarmer (1983.0566).
- Musicbox, Inc. (through Dean and Sheryl Foster): courier tuxedo consisting

- of pants, jacket, shirt, cuff links, studs, gloves, shoes, and a bow tie and 3 badges, 2 buttons, and 2 plaques from the singing telegram service Musicbox, Inc. and Western Union, Inc. (1983.0572).
- Susan H. Myers: 3 reproductions of Moravian roof tiles made of coarse earthenware by Epro, Inc., 1968–69, and a coarse red earthenware drain pipe, 19th century (1982.0505).
- Perham C. Nahl: 132 U.S. first flight covers (1984.0013).
- County of Nassau, Department of Recreation and Parks, Nassau County Black History Museum (through Willie Houston): cacheted cover commemorating the 69th anniversary of the founding of the National Association for the Advancement of Colored People (1983.0269).
- The National Committee for the Bicentennial of the Treaty of Paris (through Joan R. Challinor): first-day cover signed by Graham Elson commemorating the bicentennial of ballooning and of the Treaty of Paris, 1783–1983 (1983.0438).
- National Education Association Communications (through Keith B. Geeger): 2 videotape cassettes, 2 posters, poster art, and a storyboard (1983.0601).
- National Organization for Women (through Judy Goldsmith): 5 videotape cassettes of newsclips and a videotape cassette of the "ERA Countdown" film (1983.0126).
- National Society Daughters of the American Revolution (through Patricia W. Shelby): Yorktown Bicentennial bronze medal, 1981 (1981.0545).
- Mortimer L. Neinken: 6 Indian Hundi notes of the King George V period (1980.0896); 106 ancient Greek coins and 5 weights from the Black Sea region (1980.0942).
- Willie Nelson: black polyester "Willie and Family on the Road Again" tour jacket and a red cotton neck scarf (1983.0551).
- Y. T. Nercessian: 6 Armenian Los Angeles medals (1984.0246).
- The City of New York, Department of Consumer Affairs (through Simon P. Gourdine and Edward I. Koch): 27 weighing and measuring devices, 19th and early 20th centuries (1983.0514).
- David A. Nicksay: 3-piece clown costume, undershirt, bow tie, black shoes, red felt hat with rhinestones, red gloves, red socks, 2-piece clown boxing outfit, 2 pairs of boxing gloves, brass trumpet in case, make-up kit, sewing kit, and an oil painting all relating to the career of Ringling Brothers Circus clown Zapata (1983.0571).
- Government of Norway, General Directorate of Posts: 19 mint stamps and first covers of Norway (1983.0136).
- Harold L. Oberheim, Jr. and Tillie N. Oberheim: 2 ticket checks and a menu from President Roosevelt's Birthday Ball, January 30, 1934 (1984.0220).
- Tillie N. Oberheim: 2 pieces of President Roosevelt's birthday cake, January 30, 1934 (1984.0054).
- Peter Obershoff, M.D.: office model space eikonometer made by the American Optical Company (314554).
- Catharine C. Olds: book *Anti-Suffrage Essays* by Massachusetts women, 1916 (1983.0670).
- Elisabeth Pal: 11 puppets made by George Pal and 2 videotape cassettes of George Pal's puppetoons "Date with Duke" and "Tubby the Tuba" (1983.0361).
- Mildred R. Palmer: 3 woman's silver bracelets set with rhinestones, 1927–35 (1983.0373).
- Joseph Parisi: 7 AFSCME buttons (1984.0344).
- Janie Parker: pair of ballet slippers worn by Ms. Parker during Houston Ballet's performance of *The Sleeping Beauty* in Washington, D.C. on October 11–16, 1983 (1983.0552).



- Mrs. Jefferson Patterson: 49 33-rpm phonorecords, 15 45-rpm phonorecords, 3 riding crops, 2 horse show ribbons, a pennant, pair of ice hockey gloves, folding fishing knife, Dale Carnegie course pin, and a set of cuff links and tie clasp with a ski motif (1983.0393); 4 medals, 2 red silk rally ribbons, magazine dated April 1954, 1959 National Republican Associates elephant, 1968 Republican campaign bottle, United Nations arm band, medallion, pro-choice button, banner, straw hat, post card, and a paper weight (1984.0308).
- Verna G. Patterson: 12 pieces of sheet music (1984.0024).
- Sidney A. Peerless, M.D.: 165 ancient lead *tesserae* (1982.0035).
- Magdalene M. Perrou: handbill poem titled *The Assassination of President McKinley* by H. M. Black, ca. 1901 (1983.0160).
- Virginia E. Peterson on behalf of the children of James F. Easton, M.D.: 2 nebulizer bottles, an electro-therapeutic machine, atomizer spray apparatus, diploma, and a picture of the first graduating class of the University of Maryland Medical School (1984.0576).
- Dr. John Misha Petkevich: 13 "An Evening with Champions" skating programs, 1970–82 (1983.0550); 8 posters and a program from "An Evening with Champions" ice skating exhibitions (1983.0859).
- Phelps Dodge Refining Corporation, Laurel Hill Works (through Raymond Scheurer): Herreshoff triple expansion steam engine with direct-connected Westinghouse direct current generator, ca. 1904, a Herreshoff Manufacturing Company builder's plate dated 1904, and a Westinghouse Electric and Manufacturing Company builder's plate, ca. 1892 (1983.0090).
- Clifford F. Pinkham: 16 World War II maps (1982.0167).
- Polish American Nuismatic Association (through Louis Koncza): 2 bronze medals, one commemorating the 300th anniversary of the Relief of Vienna and the other commemorating Pope John Paul II's 60th birthday (1984.0463).
- Mr. and Mrs. Henry H. Porter: glass bowl in Sirenes pattern made by Rene Lalique et Cie of Paris, France, ca. 1932 (1983.0495).
- Alan W. Postlethwaite: silicon transistor slice and a subminiature transistor prepared by Raytheon Company for use by Bulova in Accutron watches (1984.0097).
- Vocille M. Pratt: plate and 4 stemmed glasses in the Cactus pattern, bowl decorated with high relief band of parakeets, and a tumbler with a fern design made by Rene Lalique et Cie, 1930–33, and a toilette jar and cover in the Dahlia pattern made by Cristal Lalique, ca. 1960 (1983.0312); 5-piece place setting of blown molded colorless glass in Cactus pattern made by Rene Lalique et Cie, Paris, France, 1930–33 (1983.0828).
- Procter & Gamble Productions, Inc. (through Fred Bartholomew): coffee pot and house coat from the television daytime series "Guiding Light" and an apron, globe, and Thank You card from the series "As the World Turns" (1984.0198).
- Brian Pugh: 2 Spalding baseballs, one autographed by Don Drysdale and the other autographed by the L.A. Dodgers (1984.0228).
- Puritan-Bennett Corporation (through John B. Weium): Puritan-Bennett ventilator (1982.0382).
- Railroaders Memorial Museum (through Robert L. Emerson): rail drill (1983.0087).
- Juliette K. and Leonard S. Rakow, M.D.: preliminary sketch for the cameo glass *Pegasus* vase by John Northwood I, England, ca. 1878 (1983.0884).
- Julian A. Rand, Jr.: blown "Favrite" art glass vase made by Louis Comfort Tiffany, ca. 1915 (1983.0172).
- Thomas M. Raysor, Jr.: 5 posters, 2 fans, a flyer, pennant, boutonniere, and

- a button, all from the 20th anniversary "March on Washington," August 27, 1983 (1983.0540); yellow felt banner with purple lettering reading "Gay Farm Workers" (1983.0877).
- John P. Remensnyder: 21 plaster molds and a stamp from the American Pottery Manufacturing Company of New Jersey, 1833-45, 16 pieces of 19th-century American earthenware and stoneware mugs, flasks, jars, and inkwells, a 17th-century possibly Swedish stoneware mug, and a ceramic tile from the Rookwood Pottery Company of Ohio, 1900 (1978.0938).
- Estate of John Paul Remensnyder (through Doris R. Ballantyne and J. P. Remensnyder, M.D.): 92 iron, copper, and brass objects used in the home in the 18th and 19th centuries (1982.0090); 67 late 18th- through early-20th-century ceramic objects (1982.0423).
- Barbara G. Reno: phonograph turntable, phonograph record recorder, 4 public speech recordings, 2 blank disks, 2 microphones, 2 headphones, and miscellaneous cords (1984.0098).
- Rexnord, Inc., Process Machinery Division (through Richard R. Bains): 40 linen tracings and drawings, 29 glass negatives, 24 blueprints, 3 sales books, 3 pairs of double calipers, 2 builder's plates, and a pressure rise scale used by the Nordberg Manufacturing Company (1984.0243).
- Ira Rezak, M.D.: "Genesis" and "Exodus" medals by Brian Watkins (1983.0676).
- Harriet C. Riddle: 7 woman's dresses, 5 hairpieces, 3 cards of trimmings, a woman's hoop and instruction sheet, pair of shoes, sweater, chemise, bonnet, and a pair of drawers, late 19th to early 20th centuries (1981.0250).
- S. Dillon Ripley: 9 Bulgarian commemorative coins (1983.0435); Cyprus 500 mils silver proof coin commemorating the 30th anniversary of the Universal Declaration of Human Rights, 1978 (1983.0677).
- Seymour Robins: 19 paper graphics designed by Mr. Robins (1984.0379).
- Rockaway Corporation (through Robert Jania): secondary standard balance handmade for Triner Scale & Manufacturing Company by a German machinist in 1910 (1984.0583).
- Fred Rogers: rust colored knit sweater worn by Fred Rogers on the children's television program "Mister Rogers' Neighborhood" (1984.0219).
- Curtis and Jeanette S. Roosevelt: 5 gowns, 4 pieces of lace, 3 coats, 3 collars, 2 jackets, a pair of shoes, pair of sleeves, pair of cuffs, slip, shawl, and a piece of fabric which all belonged to Eleanor Roosevelt (1983.0405).
- Abraham A. Rosen: 1,944 ancient Greek and Roman coins (1981.1025).
- Jonathan P. Rosen: 1,215 ancient and medieval coins (1981.1024).
- J. William Rosenthal, M.D.: 15 intraocular lenses, 4 glasses frames, 1930s and 1950s, and a French lens edger machine, ca. 1750 (1984.0483).
- Rowantrees Pottery (through Sheila B. Varnum): 6-piece place setting of luncheon dishes of the same pattern presented to Mrs. Eisenhower in 1955 (1983.0052).
- Mrs. Sumner Rowe: militia dress coat, ca. 1850, and a pair of gilt epaulettes (1984.0256).
- Edwin A. Rowlands: 6 golf gloves, 2 pairs of racing gloves, 2 pairs of football stockings, 2 horseshoes, 2 baseballs, a baseball bat, baseball cap, basketball jersey, hair ribbon, whisk broom, whistle, and an emory cloth (1983.0347); autograph of J. Honus Wagner, first-base coach of the Pittsburgh Pirates, dated 1935 (1984.0135).
- Royal Copenhagen Porcelain Corporation (through Per Sorensen): 5-piece silver place setting in the Acorn pattern designed by John Rohde in 1915 and made by Georg Jensen in 1982 (1983.0645).
- John E. Ruedy: 4-inch refracting telescope with a set of 4 eyepieces, star diag-

- nol, accessory box, equatorial mount, and a tripod, built by John A. Bra-shear, ca. 1896 (1983.0579).
- Bernard R. Rumbutis: Remington electric typewriter (1982.0334).
- SAS Philatelic Club: 7 first-flight covers of the Scandinavian Airline System (1983.0400).
- Dr. Michael A. Sabia, D.C.: "Enswell" device invented by Dr. Sabia to reduce eye swelling of boxers between rounds (1983.0076); scoliometer invented and patented by Dr. Sabia, 1983 (1984.0286).
- Estate of Sen. Leverett Saltonstall (through William L. Saltonstall): fence rail split by Abraham Lincoln and John Hanks, 1829-30 (1983.0418).
- William M. Sandridge: bronze medal of Franklin D. Roosevelt by French medalist Anie Mouroux, 1945 (1983.0427).
- Kitchens of Sara Lee (through Peg Ransom): plaque commemorating the "Bicentennial Birthday Cake of the United States" which was made by the Kitchens of Sara Lee and displayed in Philadelphia's Memorial Hall, July 4, 1976 (1983.0663).
- Carl H. Scheele: 2 medals and a plaquette (1981.0621); booklet *Family Shelter Designs* (1983.0582); shopping bag and litter bag with political campaign slogans (1984.0368).
- Nadine and William F. Schmitt: solid brass prisopiometer with lenses made by the Standard Optical Company, patented September 21, 1886 (312673).
- Catherine M. Schroeder: handkerchief box which belonged to Caroline C. Fillmore, second wife of President Millard Fillmore (1983.0278).
- Howard Schwartz: 2 tickets to "Woodstock Music and Art Fair," August 16 and 17, 1969 (1983.0154).
- Dr. L. Albert Scipio II: 9 reproduction enlisted-rank collar disks, 1907-26 (1983.0766).
- Scovill, Inc. (through Josephine Byrolly): 1,715 coins, tokens, medals, and campaign buttons (1981.0296).
- Kenneth Akiva Segan: etched print portrait of Albert Einstein by Mr. Segan, 1981 (1983.0707).
- Daniel M. Semel: socket chisel marked "James Cam" (1983.0331).
- Carl A. Sferrazza: political button "Re-Elect Rosalyn/First Lady" (1983.0351); 2 movie posters and a pair of 3-D glasses from the movie *Jaws III*, 1983 (1983.0553); 2 political buttons, a Bicentennial flag, and a "Khomaniac Dartboard" poster (1983.0599); booklet titled *How to Become a Citizen* by Charles Kallmeyer, 1925 (1983.0824).
- Neil Shafer: 616 pieces of paper scrip items and tokens given by food stores as change to customers in the USDA food stamp program (1983.0454).
- Mrs. Blanche Shavers: trumpet used by Charlie Shavers and a framed oil painting of Mr. Shavers playing the trumpet (1983.0479).
- Dr. Margery W. Shaw: 180 Napoleonic and French Revolution covers and documents from volumes 8 and 9 of the Henry A. Myer Collection (1983.0780).
- David H. Shayt: certificate for good behavior and regular attendance awarded to Allen Searle from the public schools of Rochester dated April 13, 1865 (1983.0203).
- William F. Showers, P.E.: Leeds & Northrup temperature recorder, ca. 1920 (1984.0026).
- Shriners Hospital for Crippled Children, Burns Institute-Cincinnati Unit (through Bruce Glenn MacMillan, M.D. and Matthew P. Maley): 2 patient isolator units with components used in specialized treatment of severe burns (1980.0187).
- Alberta R. Shy: post card with drawing of an elephant and the words "Pull

- My Tail and See—The Next President” which is a photograph of William H. Taft, November 1908 (1983.0483).
- Vijai Pal Singh, M.D.: 6 sheets of 261 postage stamps from Nepal (1983.0640).
- Vilma F. Slingerland: petit point purse with scenes of George Washington entering Philadelphia and the Declaration of Independence and a “Capitol Building” handle (1984.0323).
- Harriet K. Smith: log cabin pattern pieced-work quilt, 19th century (1983.0731).
- Ruth Marie Smith: child’s 9-patch pieced-work quilt embroidered with “Charlotte Roe Virgil, 1806” (1984.0092).
- Velda Tindall Smith: brown tooled leather saddle used by Velda Smith while a rodeo trick rider and a quilt with tan squares embroidered with signatures of various rodeo stars made by Mrs. Smith (1983.0386).
- Verna E. Smith: Chicago World’s Fair stereoscopic viewing device with 6 photographic slides of views of the Fair contained in the original box, 1933 (1984.0525).
- Smithsonian Institution, Business Management Office, Mail Order Division (through Luna Lambert): 2 pressed glass goblets in Broken Column pattern, one ca. 1886 and the other a 1982 reproduction, a pitcher, spoonholder, and sugar bowl of pressed glass in Lion pattern, 1867–1930s, and a bone china reproduction of a Chinese bowl, 1980 (1982.0499); bone china platter reproduced from an 18th-century Höchst “raised flower” patterned piece and a bone china teapot and cover reproduced from an 18th-century English teapot (1983.0161); bone china cup and saucer reproduced from an 18th-century Vienna piece, made by Lenox, Inc., 1983 (1984.0238).
- Albert Soiland Cancer Foundation, Southern California Cancer Center (through James F. Nolan, M.D.): 3 self-regulating x-ray tubes (1981.0588).
- Joseph C. Sonntag: 2 samples of Edison wire and tube, telegraph relay, and a cable splice (1983.0334).
- South African Mint: set of 8 commemorative coins of South Africa, 1979 (1979.0822).
- Alice L. Sparrow: 2 woman’s 2-piece suits designed by Adrian and Gunther Jaeckel, 1949–52 (1982.0177).
- Benjamin Stack: 136 Greek coins from Pontus (1983.0512).
- Benjamin, Harvey G., and Norman Stack: 120 French medals and plaquettes (1977.1210); 176 gold *mohurs* issued by the Mogul Emperors of India, A.D. 1556–1806 (1977.1214); 11 ancient Greek and Roman counterstamped coins (1980.0938); 9 ancient Greek *tetradrachms* from Agrigentum and Messana in Sicily, 5th century B.C. (1981.1049); 10 ancient Greek silver *tetradrachms* from Syracuse and Messana in Sicily, 5th century B.C. (1981.1050); 10 ancient Greek silver *tetradrachms* from Leontini and Messana in Sicily, 5th century B.C. (1981.1055); 8 ancient Greek coins from Messana in Sicily and a bronze weight for one *mna* from Cyzicus in Mysia (1981.1056); 10 dies for striking ancient Greek coins (1981.1075); 10 dies for striking Siculo-Punic coinage, 410–310 B.C. (1981.1076); copper gilt twenty-dollar piece from the California Miners Bank, San Francisco, 1850 (1983.0426); box-taler of Ludwig III of Bavaria with portraits, 1914–16 (1983.0428); 6 letters and financial documents, 18th and 19th centuries (1983.0431); letter written by Catherine II of Russia to Lt. Col. Baron Osten Sacken in reference to the Order of the Holy Apostolic Sant Prince Vladimir, written from St. Petersburg on December 4, 1792 (1983.0432); 4 letters, an engraved portrait, and an obituary all related to Francis Elias Spinner, 1802–90 (1983.0433); 23 French and Italian personal medals (1983.0445); 2 ancient Greek and 2 Roman Imperial coins (1983.0674); 28 gold and electrum Byzantine coins, A.D. 1025–1225 (1983.0682); 31 Roman Republic silver *denarii* (1983.0683);

- 64 dies used to strike counterfeit Roman Imperial and Byzantine coins (1983.0784).
- Harvey G. Stack: 145 Greek coins from Paphlagonia (1983.0510).
- Norman Stack: 98 Greek coins from Nysia (1983.0511).
- John N. Stafford: facsimile of a Department of State \$10.00 stamp (1984.0186).
- Carl L. and Elaine Steiner: 5 pieces of "tin" glazed porcelain made in Doccia, Italy, ca. 1750, a porcelain basket made in Worcester, England, 1765-75, porcelain cup and saucer made in Germany, 1825-50, and a porcelain chocolate pot made in China, 1775-1810 (1981.1026).
- Richard L. Steiner: piece of an 18th-century silk brocade dress which belonged to Martha Washington (1984.0132).
- Anne W. Stockvis: carved, burnished, and pit-fired ceramic vase made by Nancee Meeker, ca. 1979 (1982.0809).
- Marion B. Stokes: direct disc recording in jacket titled "Lincoln Mayorga and Distinguished Colleagues" recorded at Sheffield Lab Inc., ca. 1968 (1983.0577).
- Elizabeth Dutton Stone: crocheted and embroidered afghan made by Annie E. Given Dutton in the 19th century (1983.0869).
- Lois Greene Stone: plastic "dog tag" identification on chain worn by Mrs. Stone as a school child in New York City during World War II (1984.0254).
- Stop the War (through Jay Johnson): 15 post cards from Nicaragua (1983.0543).
- Diana and J. G. Stradling: blown cobalt-blue glass pitcher, Pittsburgh area, 19th century (1981.1041).
- Estate of Alys L. Strauss (through James H. Ridgely): 2-page letters patent for an apparatus for spinning cotton and other fibrous substances granted to Asahel M. Lanpher and signed by Andrew Jackson, 1834 (1983.0292).
- Leonard H. Strittmatter: World War II Japanese surrender leaflet found on the streets of Naha, Okinawa (1984.0490).
- Mary Stuart: blue cotton apron worn by Ms. Stuart as "Joanne Toureur" on the daytime television series "Search For Tomorrow," 1951-60 (1984.0208).
- Mr. and Mrs. Galen P. Suiter in memory of Miss Sarah G. Hall: wooden niddy noddy used to wind yarn, inscribed "GAB 1779" (1981.0910).
- Mrs. W. A. Sutherland: Chinese export porcelain teapot, cover, and stand decorated with transfer printed image of the Goddess Juno, ca. 1750 (1982.0790).
- James M. Swain, M.D.: silver flute made by Theobald Boehm of Munich, Germany in 1848 and a period case (1984.0070).
- Government of Sweden, PFA, The Swedish Post Office, Stamps and Philatelic Services: 281 mint stamps, booklets, and first-day covers of Sweden (1983.0137).
- Dr. Hans Syz: porcelain teabowl and saucer decorated with handpainted Cornflower pattern, Nyon, Switzerland, ca. 1770, and a porcelain tureen cover, Meissen Germany, 1730-35 (1981.0931); porcelain saucer made by Joseph Gaspard Robert in Marseilles, France and a porcelain coffee pot decorated with fruit and butterflies from Zurich, Switzerland, both ca. 1780 (1981.1027).
- David L. Tapscott: white T-shirt with "The Grin Will Win" in green (1984.0204).
- Samuel Teicher: 2 account books from the National Theater in Washington, D.C., 1883-85 and 1899-1905 (1983.0202).
- Temple University, School of Communications and Theater, Department of Radio-Television-Film (through Prof. Francis L. Heying): 97 radio transcriptions of presidential campaign addresses and public service programs of the World War II period (1983.0578).

- Texas Instruments Incorporated (through Dr. Willis A. Adcock): microprocessor, silicon wafer, and a solid state chip (1984.0128).
- Joseph M. Thatcher: 3 cast pewter Legion buttons, 1792–98, excavated from Ft. Washington and Ft. Jefferson sites in Ohio (1983.0817).
- Earle A. Thomas, Jr. and Jane M. Thomas: coarse stoneware pottery vase with rare "Oxblood" glaze made by Hugh Robertson's Chelsea Ceramic Art Works in Chelsea, Massachusetts, 1884–89 (1984.0049).
- Andrew F. Thompson in honor of Anna L. and Roy W. Thompson: bench-top gear-cutting machine with a brass table of ratios plate and 40 cutting wheels, 1850–75 (1983.0606).
- Harry and Henry Tobias: 50 pieces of sheet music of songs written by Charles, Harry, and Henry Tobias (1983.0529).
- Col. Paul E. Todd: woman's dress with embroidered white roses and rhinestone decorations worn by the wife of Assistant Secretary of State John E. Osborne, 1913–15 (1982.0094).
- Paul A. Tolovi: 2 coat of arms plaques of the Defense Communications Agency (1983.0702).
- Cynthia R. and Stephen F. Townsend in memory of Woodrow E. Townsend: banner taken from a town building in Eisengen, Germany, April 1945 (1982.0504).
- Thomas N. Tully: roofer's soldering hatchet copper (1983.0332).
- Lillian Scheffers Turner: *Lady Diana* sculpture of a woman on horseback made by Lenox, Inc., 1940s, and a Lenox porcelain cream pitcher and sugar bowl with cobalt-blue glaze and silver overlay, 1910–30 (1981.0700); 3 Lenox porcelain demitasse cups in silver holders by Gorham (1981.0758).
- Lillian Scheffres Turner: *Lady Diana* sculpture of a woman on horseback containing a 22-karat gold portrait bust of Martin Luther King, Jr. made by Compagnie des Cristalleries de Baccarat of France, signed by sculptor Joseph Goy, 1979 (1981.0032).
- Marian B. Tuthill: autograph album containing signatures of outstanding people of the early 20th century collected by Elizabeth Tuthill Johanknecht (1983.0758).
- Naomi Uemura: silver medal commemorating Mr. Uemura's solo dog sled expedition to the North Pole, 1978 (1979.0843).
- Union Carbide Corporation, Speciality Chemicals Division (through Warren M. Anderson and Dr. Nathan L. Zutty): original reaction vessel used by Leo H. Baekeland to mix the first batch of bakelite plastic, ca. 1909 (1983.0524).
- United Nations, Postal Administration: 100 mint stamps and panes of the United Nations (1983.0135).
- Unknown: white satin robe with red trim, hood with support, and a mask of a Ku Klux Klan costume, 1960s (1983.0595); pink crackle-glazed Japanese porcelain vase, 20th century (1983.0753); souvenir silk stockings from the visit of King George VI and Queen Elizabeth to the U.S. in 1939 (1984.0496).
- U.S. American Revolution Bicentennial Administration: 26 silver and 23 pewter plaquettes from "The Bicentennial History of the United States Ingot Series" issued by the Franklin Mint (1980.0947).
- U.S. Department of Justice, Drug Enforcement Administration (through Alice Tinn): counterfeit U.S. silver dollar, 1804 (1983.0434); U.S. Marshals Service (through Michael Spearman); 3 twenty-dollar and 2 ten-dollar gold pieces, 1883–1903 (1983.0033).
- U.S. Department of the Treasury, Bureau of the Mint (through Donna Pope): 8 coin and proof sets composed of 48 coins issued by the U.S. Mint, 1980–82 (1983.0430).

- U.S. Postal Service, Philatelic Design Section, Stamps Division (through Jack Williams): 6 first-day covers commemorating the 100th anniversary of the opening of the Brooklyn Bridge, May 1983 (1984.0087).
- V. Ushanoff: lithographic print of *The Formal Transfer Ceremony of Alaska Territory, Oct. 18, 1867, at Sitka, Alaska* by Mr. Ushanoff, 1983 (1983.0814).
- Winifred M. Valentine: 2 letters handwritten by Susan B. Anthony to Senator Palmer of Michigan, December 1884 (1984.0366).
- Robert R. Van Deventer: 4 embroidered doilies, late 19th to early 20th centuries (1984.0324); Briggs textile marking pen of glass in a 2-piece wooden case (1984.0325).
- Vocational Guidance and Rehabilitation Services (through Olive K. Banister): dress, bib, slacks, apron, blouse, tool belt, back pack, blanket, and crutch bag made by and for the handicapped (306628).
- Martin Vogel, Jr.: 55 textile objects of European origin dating from the 17th through the 19th centuries (1981.0704).
- Robert M. Vogel: 14 photographs documenting the construction of the Moravian-Silesian North Railway in Austria-Hungary, 1866–69 (1983.0634); 7 stereographic views of industrial papermaking, ca. 1900 (1983.0708); 3 engraved plates of a wood engraver's shop and tools and an explanatory letterpress text, all from Diderot's *Encyclopedie* (1983.0878).
- David Volk: shirt and rubber duckpin ball used by Dave Volk and his 1962 DPAA Duckpin All-Star Match Game Championship Trophy (1984.0197).
- James H. Wallace, Jr.: 3 handouts, 2 posters, a letter, and a bumper sticker all relating to the 20th anniversary "March on Washington," August 27, 1983 (1983.0542).
- Florence E. and Franklin W. Wallin: parlor "cocked hat" style grand piano made by Chickering & Sons Co. of Boston, Massachusetts in 1857, a piano stool, and a period tuning hammer (1983.0377).
- Edward J. Ward: cap and collar insignia of a U.S. Army Air Corps cadet, World War II (1983.0886).
- Deborah Jean Warner: bumper sticker "Harold Washington-Punch-8-For-Chicago" (1984.0403).
- C. Malcolm Watkins: coarse red earthenware jar of a type made in Buckley, North Wales, mid-18th century, and a clear colorless blown glass sugar bowl and cover made at Thomas Cains' South Boston Flint Glass Works or at his Phoenix Glass Works, 1813–30 (1981.1038); round brass box with art pottery tile cover made by Low Art Tile & Metal Manufacturing Co., 1877–1902 (1982.0144); pair of andirons with human-head-shaped finials, fluted pillars, and bow-shaped front legs, 1786–1820 (1983.0808); crossing tender's stop sign, early 20th century (1984.0112).
- Joan Pearson Watkins: 7 stoneware and earthenware cooking and preserving objects and a blown amber glass bottle (1980.0786); 9 teaspoons, 4 dinner forks, 4 dinner knives, 2 serving spoons, and a butter knife, all silver-plated flatware (1983.0461); pink "crackle" glass pitcher and lid, 1920s–30s, and a pale aqua glass vase with striated yellow areas made by James M. Wayne, ca. 1969 (1983.0494); set of 14 fork-spoons and a set of 12 picnic spoons cut from thin panels of wood and a set of 12 drapery hooks on original cardboard (1983.0643); painting of a *Race on Long Island Sound* between 2 steamboats, ca. 1870 (1984.0358).
- Helen E. Weber: woman's green coat made by Zelinka and Matleck and a green felt hat, 1949–50 (1983.0850).
- Margaret B. Wennersten: pillow top with "Flags of Nations at War with Germany" on one side and "Remember Me While I am Helping to Make the World Safe for Democracy" on the other side (1981.0985).
- West Virginia Independence Hall Foundatin (through Dr. Emory L. Kemp):

- section of wrought iron "I" beam rolled by the Trenton Iron Works in 1856 and removed from the Custom House of Wheeling, West Virginia between 1856 and 1859 (1983.0764).
- Phyllis S. Wetherill: 36 cookie, biscuit, and doughnut cutters (1983.0711).
- Rodd L. Wheaton: 13 samples of pile carpet from the Marcus Daley Hotel in Anaconda, Montana and 2 samples of ingrain carpet from Maryland churches, all 19th century (1980.0616).
- John N. White: 2 reproduction golf clubs and a set of 6 golf balls mounted in a case showing the development of golf balls (1983.0532).
- Maxwell Whiteman: 14 Afro-American figurines (1983.0689).
- Frances F. Wilkins: violin and bow made by John Albert of Philadelphia, ca. 1876 (1981.0781).
- Kenneth A. Williams: 3 fezzes and 2 pins used by Roy G. Genneary while a member of the International Order of Odd Fellows (1984.0315).
- Hugh Allen Wilson: Chickering & Sons clavichord designed by Arnold Dolmetsch, 1908 (1983.0157).
- Gretchen L. Witt: fashion plate from *Petit Courrier des Dames*, ca. 1837, and a woman's dress, 1977 (1982.0447).
- George W. Workman: police chaplain's badge, Long Beach, California (1984.0346).
- David Wright: 2 ceramic dishes in the Celebron pattern made by the Al-bright China Co. of Ohio, early 20th century (1983.0325).
- Victoria Wyndham: bust of Steve Frame sculpted by Ms. Wyndham on the daytime television series "Another World" (1984.0252).
- David E. Zeitlin: black basalt stoneware teapot with impression "Turner" on base, ca. 1790, and a ceramic creamware "loving cup" inscribed "1769" made by Leeds Pottery (1982.0807); 2 blue jasper stoneware pitchers by William Adams & Sons, covered brown jasper-dip stoneware game pie dish made at Turner Works, and a pearlware tea caddy, all English, ca. 1800 (1983.0302).
- Zimmerman, Galanty & Fiman (through Sidney Galanty): 2 videotape cassettes, 2 audio tapes, 2 photographs, 2 descriptive literature packets, newspaper advertising art, and a storyboard from advertising campaigns for presidential candidate Barry Commoner of the Citizen's Party, 1980, and for the Citizens for Common Sense in National Defense, 1982 (1983.0155).
- Zippo Manufacturing Company (through William W. Jones): 3 lighters made by the Zippo Manufacturing Company in 1932, 1943-45, and 1983 (1983.0394).

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 Dr. and Mrs. Giraud V. Foster  
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 Mr. Wilbur H. Friedman  
 Mr. Cary J. Frieze  
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 Mr. and Mrs. Malcolm O. Garfink  
 Mr. and Mrs. John Garney  
 Mr. and Mrs. Geoffrey G. Garney  
 Mr. and Mrs. Carleton G. Gebhardt  
 Mr. Edward K. Geehan  
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 Dr. William H. Gerber  
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 Miss Helen W. Giacobine  
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 Dr. and Mrs. David M. Gibson  
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 Mrs. Sara E. Gillis  
 Mr. and Mrs. Oscar S. Glasberg  
 Mrs. E. W. Glascock  
 Mr. and Mrs. Ezra Glaser  
 Mr. and Mrs. Gerald K. Gleason  
 Mr. and Mrs. George W. Gleim  
 Mrs. C. Leslie Glenn  
 Mr. W. J. Godard  
 Col. and Mrs. Julius Goldstein  
 Mr. Stuart N. Goodman  
 Mrs. Lois R. Gordon  
 Mr. and Mrs. William Gouldsbury  
 Ms. Margaret Grady  
 Mr. Harold D. Grant, Jr.  
 Mrs. Earle Gray  
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 Mrs. Judith Greene  
 Mr. and Mrs. Peter B. Greenough  
 Mr. Seymour D. Greenstone  
 Mr. Mark Greenwold  
 Mr. Richard T. Gregg  
 Mrs. Joseph B. Gregg  
 Mr. Richard P. Grill  
 Mr. William A. Grimes  
 Mr. Donald O. Grimes, Jr.  
 Ms. Audrey J. Groene  
 Ms. Nancy Grove  
 Ms. Marilyn L. Guerra  
 Miss Elizabeth P. Hagen  
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 Mr. and Mrs. Samuel Halpern  
 Mr. Kenneth A. Hamman  
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 Mr. and Mrs. Ronald W. Haughton  
 Mrs. Florence Ogier Hawley  
 Dr. John T. Hayes  
 Dr. Kenneth P. Head  
 Miss Annabelle Heath  
 Mr. Robert C. Hector  
 Dr. T. W. Heil  
 Mr. H. C. Heldenfels  
 Mr. and Mrs. Douglas B. Hendrick  
 Mr. Jack E. Herington  
 Mrs. Catherine W. Herman  
 Mr. Paul C. Herndon  
 Mr. Arnold L. Hesper  
 Mr. S. O. Hessler  
 Dr. Margaret S. Hibbs  
 Mr. William L. Higgins  
 Mr. and Mrs. Friedrich Hilken  
 Col. and Mrs. George M. Hinckley  
 Mr. and Mrs. William J. Hines  
 Mrs. J. H. Ward Hinkson  
 Mr. Joseph U. Hinshaw  
 Mrs. Robert H. Hoexter  
 Mr. Andy W. Hogan  
 Mr. Duncan A. Holaday  
 Mr. Nick Holland  
 Mr. Richard Hullander  
 Mr. John M. Holm  
 Mr. Franklin P. Holman  
 Mr. and Mrs. E. R. Hommet  
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 Mr. Samuel G. Hubbard  
 Mr. William R. Humphrey  
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 Mr. Charles Johnston  
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 Miss Charlotte Jones  
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 Mr. Emanuel Karadimos  
 Mrs. R. H. Karns  
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 Major John R. Keiper, Jr.  
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 Ms. Candace H. Keller  
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 Mr. and Mrs. Harris L. Kempner, Jr.  
 Mr. and Mrs. George P. Kendall, Jr.  
 Mr. David T. Kenney  
 Ms. Anna Marie Kent  
 Mr. B. R. Kent  
 Mr. Thomas C. Kerr  
 Mr. Walter H. Kidd  
 Mr. Gary Kilpatrick  
 Mr. George H. Kinkel  
 Sgm. David P. Kirschbaum  
 Mr. Stephen L. Kitterman  
 Mr. and Mrs. K. W. Klages  
 Mr. Kenneth W. Klein  
 Ms. Lynda Heckman Kling  
 Mrs. J. K. Knee  
 Mr. and Mrs. Walter Knight  
 Ms. Diana Sinkler Knop  
 Mr. John W. Knowles  
 Ms. Jean R. Knutsen  
 Mr. Steven R. Koman  
 Ms. Jane E. Kosa  
 Mr. and Mrs. John D. Kotler  
 Ms. Anna Kovaszny  
 Mrs. June F. Kraft  
 Mr. Irving Kreisberg  
 Ms. Barbella F. Kuenz  
 Mr. and Mrs. Morton J. Kuff  
 Mr. Clarence M. Kuntsmann  
 Mr. and Mrs. W. O. Kurtz, Jr.  
 Mrs. E. N. Laboyteaux  
 Miss Martha Ladd  
 Mr. and Mrs. Frank A. Ladd  
 Judge and Mrs. Marion Ladwig  
 Mr. John A. Laird  
 Mr. James H. Landers, Jr.  
 Mr. John Lansdale  
 Mr. and Mrs. J. H. Lauderdale  
 Mr. J. W. Laughlin  
 Dr. Jack M. Layton  
 Mr. Sperry Lea  
 Mr. C. W. Ledebur  
 Mrs. Florence J. Lee  
 Mr. and Mrs. William Lehfeldt  
 Ms. Jeanne Lemmer  
 Mr. Richard J. Leonard  
 Mrs. Ethelynn H. Leonard  
 Hon. William Leonhart  
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 Mr. and Mrs. William B. Levin, Jr.  
 Mr. and Mrs. Ernest E. Lewis  
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 Mr. James R. Lightfoot  
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 Mr. Gary Dean Lindsay  
 Ms. R. Lindstrom  
 Mr. Robert F. Lint  
 Mrs. Eunice K. Lipkowitz  
 Mr. and Mrs. Robert J. List  
 Dr. R. H. Lloyd  
 Mr. David H. Lloyd  
 Mr. and Mrs. H. M. Locker  
 Mr. C. Henry Lockwood, II  
 Mr. and Mrs. John H. Leowy  
 Mr. Everett J. Long  
 Mr. William A. Long  
 Mr. Walter H. Long, Jr.  
 Mr. Joseph R. Lorence  
 Mr. P. H. Loughlin, III  
 Mr. Bart W. Lovins  
 Mr. Charles L. Lowery  
 Mr. La Rue R. Lutkins  
 Mrs. Mike Lyman  
 Mr. Maurice B. Lynch  
 Mr. James I. McAuliff  
 Mr. Walter J. McBride  
 Mr. Donald E. McCallister  
 Mrs. Violet McCandlish  
 Ms. K. M. McCauley  
 Mr. and Mrs. Geoffrey E. McCool  
 Mr. John O. McCracken  
 Mr. Jack H. McCreery  
 Mr. Matthew B. McCullough  
 Mr. Robert McFadden  
 Mr. Joel U. McFarland  
 Ms. Nancy J. McGinness  
 Mr. James P. McGranery, Jr.  
 Mr. and Mrs. Kenneth C. McGuinness  
 Mr. John S. McInnes  
 Dr. and Mrs. W. E. McIntyre  
 Dr. and Mrs. Douglas W. McKay  
 Mr. and Mrs. John D. McLean  
 Ms. Priscilla J. McMillan  
 Mr. W. H. McNaughton  
 Mr. James A. McNeese  
 Mrs. W. J. McNeill  
 Mr. R. V. McPherron  
 Mr. Ralph Eugene McWhorter  
 Mrs. Alexander F. MacDonald  
 Ms. Marian S. MacIntyre  
 Ms. Ellen B. MacNeille  
 Mr. and Mrs. A. Martin Macy  
 Mr. Rex A. Maddox  
 Mrs. James T. Magee  
 Mr. Philippe L. Maleval  
 Ms. Helen J. Malmstead  
 Mr. Harry Mandil  
 Mr. Michael L. Mangan, III  
 Mr. and Mrs. Paul Mannes  
 Mr. E. Manuel Manning  
 Mr. Paul Margus  
 Mr. Edward Marks  
 Mr. Robert A. Marmon  
 Mr. S. C. Marshall  
 Mr. Robert C. Marston  
 Mr. George H. Marston  
 Mr. Alfred S. Martin  
 Mrs. Elizabeth Martin  
 Mr. M. S. Martin  
 Dr. Robert B. Matheny  
 Dr. and Mrs. Glenn B. Mather  
 Mrs. B. E. Matheson  
 Mrs. Elbert G. Mathews  
 Mr. and Mrs. Edward J. Mathias  
 Mr. and Mrs. Wayne A. Mattox  
 Miss Julia A. Maxwell  
 Dr. William B. May  
 Mr. and Mrs. Joseph S. Mazza  
 Mr. and Mrs. David L. Mead  
 Mr. Hans M. Mende  
 Mr. Leon A. Mensing  
 Mr. and Mrs. E. Mercy, Jr.  
 Dr. and Mrs. William H. Meroney  
 Mr. Ted S. Merrill  
 Mrs. Kathryn Mervenue  
 Mr. Paul D. Meyer  
 Mr. and Mrs. Samuel M. Meyers  
 Mr. Dominic L. Meylor  
 Ms. Carla Michaels  
 Col. and Mrs. James E. Miller  
 Mr. Warren G. Miller  
 Mr. and Mrs. E. Kirkbride Miller  
 Mr. and Mrs. Herbert E. Miller  
 Mr. and Mrs. James T. Miller  
 Mr. and Mrs. James T. Milne  
 Mr. Glenn J. Mischel  
 Mr. and Mrs. Ford F. Miskell  
 Mr. Walter W. Mitchell  
 Mr. Earle W. Mitchell  
 Mr. and Mrs. George B. Mitchell  
 Mr. Dexter N. Mohr  
 Mr. Leo Molinaro  
 Mr. David R. Montz  
 Col. and Mrs. E. W. Moody  
 Mr. and Mrs. James A. Moore  
 Mr. and Mrs. Arthur Cotton Moore  
 Mr. Richard H. Moore

Mrs. E. Moore  
 Mr. Cecilio J. Morales  
 Mr. J. Maxwell Moran  
 Mrs. Theda A. Moreno  
 Ms. Margaret Morgan  
 Mr. Harold F. Morgan  
 Mr. Shane Moriarity  
 Mr. Charles W. Morris  
 Mr. J. C. Morris  
 Mr. Richard E. Morrison  
 Dr. W. Dickson Moss, III  
 Mr. Philip M. Mount  
 Mr. and Mrs. Richard F. Mountfort  
 Mr. and Mrs. Carl J. Mulert, Jr.  
 Mr. Jerry L. Mungo  
 Dr. and Mrs. John C. Munson  
 Mr. Burnaby Munson  
 Mr. and Mrs. James Murphy  
 Mr. John M. Murray  
 Mr. Gary A. Murrell  
 Mr. and Mrs. Lawrence S. Myers, Jr.  
 Mr. Raymond R. Myslivy  
 Dr. Mathew L. Namikas  
 Mr. and Mrs. Ward R. Neely  
 Mr. Robert H. Neff  
 Mr. John T. Nelson  
 Mr. Clifford M. Nelson  
 Dr. Heidar Nemat  
 Ms. Nancy C. Nersesian  
 Mr. Andrew K. Ness  
 Mrs. M. E. Newcomb  
 Mr. and Mrs. Richard A. Niles  
 Mr. Allen Nixon  
 Mr. Donald O. Noehre  
 Mr. Carl F. Norden  
 Mr. Giles R. Norrington  
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 Mr. Milton G. Nottingham, Jr.  
 Mr. and Mrs. Michael P. Novelli  
 Mr. and Mrs. Peter Nunez  
 Col. William F. O'Meara  
 Mr. Leonard Oberlander  
 Ms. Eileen O'Brien  
 Mr. Robert C. Ochsner  
 Mr. Carl L. Olson  
 Mr. and Mrs. Stanley Olyniec  
 Mr. Robert Orben  
 Mrs. Arthur E. Orloff  
 Mr. Robert D. Orton  
 Mr. and Mrs. E. G. Osborne  
 Ms. Christine C. Osmun  
 Mr. James C. Overholt  
 Mrs. Leah H. Owen  
 Mrs. Henry S. Owens  
 Dr. and Mrs. Michael N. Papadopoulos  
 Cmdr. Everett A. Parke  
 Mr. and Mrs. A. E. Parker  
 Dr. and Mrs. J. R. Parsons  
 Ms. Mabel Parsons  
 Mr. and Mrs. Leonard E. Pasek  
 Mr. William Patterson  
 Mr. and Mrs. James R. Patton, Jr.  
 Mr. James R. Peace  
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 Mrs. Julia Peden  
 Mr. Louis Peller  
 Mr. Edmund Pendleton  
 Mrs. Doris T. Pendleton  
 Mr. William C. Penick  
 Mr. Clarence Pennington  
 Mr. J. Perruzzi  
 Mr. James P. Perry  
 Ms. Dorothy F. Perry  
 Mr. Gene Perry  
 Miss Jacqueline Perry  
 Mr. John F. Perry  
 Mr. John W. Pfeiffer  
 Mrs. Jackman Pfouts  
 Mr. Joseph J. Phelan  
 Mr. and Mrs. Howard L. Phillips  
 Mr. and Mrs. James S. Picken  
 Ms. Jacqueline Pierce  
 Mr. Welch Pogue  
 Mr. and Mrs. R. Stephen Polley  
 Mr. Paul E. Pontius  
 Mr. and Mrs. Charles L. Poor  
 Ms. Janice Popp  
 Mr. and Mrs. Dwight J. Porter  
 Dr. Reno R. Porter  
 Mr. Louis Potkonski  
 Dr. and Mrs. W. F. Pounds  
 Mrs. Anne D. Pozzi  
 Mrs. Charles P. Price  
 Mr. and Mrs. Melville J. Price  
 Mr. and Mrs. Frank C. Price, Jr.  
 Dr. and Mrs. Jerold Principato  
 Mr. and Mrs. John E. Purcell  
 Mr. and Mrs. R. E. Purnell  
 Miss Anne E. Quiggle  
 Mr. N. B. Randall  
 Mr. and Mrs. Anthony J. Raso  
 Mr. Carl Ratner  
 Mr. W. Ray  
 Mr. Michael F. Reagan  
 Mr. Philip D. Reed, Jr.  
 Mr. Rollin M. Reeder  
 Mr. and Mrs. William B. Reese  
 Mr. Robert J. Reid

Mr. and Mrs. Albert P. Reidhead  
Dr. Michael J. Reilly  
Mr. Frank C. Reynolds, Jr.  
Mr. and Mrs. John V. Rhoads  
Mr. George F. Rhodes  
Mr. R. L. Rhodes, Jr.  
Mr. Arthur H. Rice  
Mr. and Mrs. Charles S. Richards  
Ms. Melissa J. Richens  
Mr. B. A. Richmond  
Mr. Daniel M. Ricker, Jr.  
Mrs. Richard Riddell  
Dr. Monira K. Rifaat  
Mr. and Mrs. S. Donley Ritchey  
Mr. and Mrs. John H. Rixse, Jr.  
Ms. C. J. Roach  
Mr. Lew Roberts  
R. Adm. W. D. Robertson  
Ms. Nancy J. Robertson  
Mr. Ray Robinson  
Mr. Walter P. Robinson, Jr.  
Mrs. Dori Selene Rockefeller  
Dr. Ava D. Rodgers  
Mr. D. Roesler  
Mrs. Claire V. Rogers  
Mr. Thomas D. Rogers  
Mr. John F. Rolph, III  
Mr. Irving Rose  
Mr. Charles H. Rose  
Mr. John H. Rosenhamer  
Mr. Kurt E. Rosinger  
Mr. and Mrs. Lawrence J. Ross  
Mr. Arnold Rothstein  
Mr. and Mrs. Josiah P. Rowe  
Mr. Arthur R. Rule  
Mr. Peter T. Russell  
Mr. and Mrs. Roy R. Russo  
Dr. and Mrs. Edward C. Ruth  
Mr. and Mrs. Jack B. Ryan  
Mr. Wayne D. Rydberg  
Dr. Stephen K. Rymer  
Mr. and Mrs. Kelsey Y. Saint  
Mr. Lee S. Salsbery  
Mr. and Mrs. Richard E. Sander  
Mr. and Mrs. Cameron H. Sanders,  
Jr.  
Mr. A. Herbert Sandwen  
Mr. Milton C. Sappe  
Mrs. Stanley J. Sarnoff  
Mr. David Saunders  
Mr. and Mrs. Theodore Sawick  
Mrs. Lillian M. Saxe  
Mr. James P. Scannell  
Mr. Charles W. Schaffer, Jr.  
Ms. Elizabeth W. Schappals

Mr. Michael B. Schaub  
Major and Mrs. Ronald A. Schena  
Hon. and Mrs. James H. Scheuer  
Miss Matilda P. Schlicht  
Ms. Ann D. Schmidt  
Miss Marguerite V. Schneeberger  
Mrs. Agnes Schnurer  
Mr. Anthony A. Schoendorf  
R. Adm. Joe G. Schoggen  
Mr. and Mrs. J. Schroeder  
Mr. and Mrs. Frederick P. Schubert  
Mr. Edward Schuster  
Mr. and Mrs. James E. Schwab  
Dr. and Mrs. James Schwartz  
Mr. Alton N. Scott  
Mr. Beldon D. Scott  
Mr. Robert M. Scott  
Mr. Ellwood S. Seifert, II  
Mr. Richard J. Sekerka  
Mr. and Mrs. Harold J. Selinsky  
Mr. Arnold Selk  
Mrs. Catherine H. Sells  
Mr. Sol Seltzer  
Mr. and Mrs. Joseph E. Seubert  
Dr. and Mrs. Gordon T. Shahin  
Mr. James G. Shakman  
Shaw Investment  
Ms. Ada Shearman  
Mrs. W. Mason Shehan  
Mr. and Mrs. Gerard E. Shelton  
Mr. and Mrs. George E. Sherman  
Miss Katherine Shilling  
Mr. Theodore J. Shively  
Mr. Rufus Shivers  
Mr. and Mrs. Abraham Shore  
Mr. Robert H. Short  
Dr. Stefan Shrier  
Mr. Roy Shrobe  
Ms. M. L. Sibley  
Mr. and Mrs. Jack Silberman  
Dr. A. E. Silver  
Mr. M. R. Sim  
Mr. and Mrs. Andrew Singer  
Mr. Richard A. Sites  
Mr. and Mrs. Albert H. Small  
Ms. Janice W. Smith  
Mr. Thomas F. Smith  
Mr. Edward M. Smith  
Ms. Ella E. Smith  
Mr. James B. Smith  
Mr. Zachary Smith  
Mr. Howard F. Smothers  
Mr. W. P. Snyder, III  
Mr. and Mrs. Robert G. Sobeck  
Mr. Richard P. Solloway

Mr. and Mrs. John J. Sottile  
 Mr. and Mrs. R. C. Soxman  
 Mr. D. B. Spangler  
 Mrs. Roger Squire  
 Mrs. Donna W. Stanford  
 Mr. Ellwood C. Stang  
 Mr. Gary Staples  
 Mr. Stuart L. Stauss  
 Mr. R. N. Stefan  
 Mr. John A. Steib  
 Mr. and Mrs. Robert B. Stephens  
 Mr. W. Clinton Sterling, III  
 Mr. William C. Sterling, Jr.  
 Dr. and Mrs. T. Stewart  
 Mr. William O. Stewart  
 Mr. Donald A. Stewart  
 Mr. L. K. Stork, Jr.  
 Mr. and Mrs. Richard H. Stratton  
 Dr. Warren J. Strudwick  
 Miss Sally A. Sullivan  
 Mr. Vincent M. Sullivan  
 Dr. Russell Swanson  
 Mr. and Mrs. Robert L. Swart, Jr.  
 Mrs. B. J. Sweetwood  
 Mrs. Phelps H. Swift  
 Mr. and Mrs. Richard O. Swim  
 Mr. Paul C. Symmons  
 Mr. Albert Szvetic  
 Mr. and Mrs. Leland E. Talbott  
 Dr. H. L. Taylor  
 Col. and Mrs. J. T. Taylor  
 Mrs. Richard R. Taylor  
 Mr. John Taylor  
 Mr. Joseph M. Tessmer  
 Mr. Alan Thebert  
 Mr. and Mrs. Frank A. Therrell  
 Mr. Barry Dan Thomas  
 Mr. and Mrs. Holcombe H. Thomas  
 Mr. Allen D. Thomas  
 Mr. and Mrs. William S. Thomas  
 Mr. W. Thompson  
 Mrs. Gilda B. Thompson  
 Ms. Sylvia Marie Thompson  
 Mr. James L. Thompson  
 Mrs. Margot K. Thomson  
 Mr. D. S. Thorne  
 Mrs. B. W. Thoron  
 Mrs. Vincent M. Throop  
 Ms. Barbara L. Tierney  
 Mrs. L. E. Tierney  
 Mr. Neil Tillotson  
 Mr. Richard Timmons  
 Mr. H. Titchell  
 Mrs. Clarence O. Tormoen  
 Mrs. William C. Tost  
 Mr. and Mrs. Wilbur L. Townsend  
 Mr. and Mrs. Anthony Tralla  
 Mrs. Austin E. Trask  
 Mr. Timothy Traub  
 The Treuhaft Foundation  
 Mr. Robert L. Tull  
 Mrs. James N. Tulloh  
 Mr. David S. Turner  
 Mr. and Mrs. Lee E. Tuveson  
 Mr. and Mrs. John A. Ulrich  
 Mrs. George C. Underwood, II  
 Mr. S. J. Ungar  
 Mr. Donald Usher  
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 Ms. Natalie D. Venneman  
 Mr. Theodore H. N. Wales  
 Ms. Susan P. Walker  
 Mr. and Mrs. Robert D. Wallick  
 Mr. and Mrs. Carl Walske  
 Mrs. Harry Wanger  
 Miss Carolee J. Ward  
 Mr. and Mrs. Joseph D. Warinsky  
 Mr. V. Phillips Weaver  
 Mrs. Mary E. Weber  
 Mr. Nathan Wechsler  
 Mr. and Mrs. Emil P. Weilbacher, Jr.  
 Mr. and Mrs. Edward Weinberg  
 Mr. and Mrs. Eric W. Weinmann  
 Dr. H. T. Weinstein  
 Dr. and Mrs. Alan Weintraub  
 Mr. Leonard W. Weis  
 Mr. J. R. Weiss  
 Mr. and Mrs. Jack W. Wells  
 Ms. Lucille Wendt  
 Mr. O. B. Wertz  
 Mr. and Mrs. Richard J. Wertheimer  
 Mr. J. H. Wesson  
 Miss Hilda Wexler  
 Ms. Annette P. Whatley  
 Ms. Adelia C. Wheeler  
 Mr. George Y. Wheeler, III  
 Mr. and Mrs. A. Whitaker  
 Mr. Maurice E. White  
 Mr. Peter C. White  
 Dr. John P. Whiteley  
 Mrs. Catherine L. Whitsitt  
 Ms. Mary Wibel  
 Mr. Richard J. Wicklund  
 Mr. and Mrs. J. Burke Wilkinson  
 Mrs. Dorothy R. Williams  
 Mr. and Mrs. Kenneth R. H.  
 Williams, Jr.  
 Mr. J. Reid Williamson  
 Mr. and Mrs. Ellis W. Williamson

Mr. David C. Willmon  
Mr. and Mrs. Kendall W. Wilson  
Mr. Henry T. Wilson  
Dr. and Mrs. Ralph Wilson, Jr.  
Mrs. Harriet L. Wilt  
Mr. Russell R. Witherow  
Ms. Louise Woerner  
Mr. Thomas P. Wolf  
Mr. and Mrs. Payson Wolff  
Mr. Peter K. Wolff, Jr.  
Ms. Audrey J. Wolfinger  
Dr. and Mrs. Allan Y. Wolins  
Mr. F. Wayne Womack, Jr.  
Mr. David L. Wood

Dr. Sheila Z. Wood  
Mr. William S. Woods  
Mr. Wayne D. Woodson  
Mrs. Jane Ludwig Worley  
Mrs. Mary E. Wright  
Ms. Judith C. Wright  
Mr. and Mrs. Nelson Wurz  
Mr. Frederick B. Wynn  
Mr. and Mrs. Philip D. Yaney  
Mr. Gregory B. Young  
Mr. and Mrs. Edwin Zimmerman  
Mr. and Mrs. Joseph M. Zorc  
Mr. and Mrs. Barry Zorthian

APPENDIX 10. *Visitors to the Smithsonian Institution  
in Fiscal Year 1984*

Month	Smithsonian Institution Building	Arts and Industries Building	Natural History Building	Air and Space Building	Freer Gallery of Art	National Museum of American History	Totals
October 1983 .	72,812	74,703	368,945	856,836	22,282	353,751	1,749,329
November . . . .	48,251	63,548	514,495	902,669	19,199	295,648	1,843,810
December . . . .	32,559	54,933	383,057	620,362	15,489	257,924	1,364,324
January 1984 .	25,919	33,324	217,555	452,192	13,236	184,967	927,193
February . . . . .	33,981	46,280	286,669	561,028	15,333	221,638	1,164,929
March . . . . .	51,306	63,194	502,305	849,413	19,092	361,932	1,847,242
April . . . . .	118,650	134,867	901,050	1,607,480	29,982	692,388	3,484,417
May . . . . .	91,730	117,960	789,363	1,809,361	56,771	626,149	3,491,334
June . . . . .	116,968	113,309	672,016	2,274,958	51,450	724,368	3,953,069
July . . . . .	164,141	141,582	741,088	2,077,238	53,405	711,342	3,888,796
August . . . . .	140,111	124,881	647,309	2,105,525	44,336	628,000	3,690,162
September . . . .	69,763	77,899	312,944	1,006,852	32,633	334,611	1,834,702
TOTALS . . . . .	966,191	1,046,480	6,336,796	15,123,914	373,208	5,392,718	29,239,307

Month	American Art and Portrait Gallery	Renwick Gallery	Hirshhorn Gallery	Anacostia Neigh- borhood Museum	Cooper- Hewitt Museum	Museum of African Art	Totals
October 1983 ..	26,265	12,686	79,154	1,527	13,600	3,021	136,253
November . . . .	32,707	12,068	66,883	1,702	13,503	2,669	129,532
December . . . .	28,095	11,214	43,729	2,033	10,490	3,705	99,266
January 1984 ..	33,647	12,814	38,421	1,324	7,198	3,088	96,492
February . . . . .	29,571	11,492	52,656	2,817	8,566	5,389	110,491
March . . . . .	31,408	9,809	69,300	322	11,367	5,188	127,394
April . . . . .	32,301	11,733	117,637	2,811	9,033	5,145	178,660
May . . . . .	31,504	11,566	111,038	2,449	9,300	3,722	169,579
June . . . . .	31,993	9,424	107,716	2,052	13,586	5,267	170,038
July . . . . .	31,397	8,825	116,782	3,396	11,703	6,012	178,115
August . . . . .	31,938	9,418	105,702	2,248	12,472	4,381	166,159
September . . . .	27,769	8,940	71,926	0	10,872	2,725	122,232
TOTALS . . . . .	368,595	129,989	980,944	22,681	131,690	50,312	1,684,211
Grand Total . . .							<u>30,923,518</u>

Note: Not reflected in the above tabulation are an estimated 3,300,000 visitors to the National Zoological Park in fiscal year 1984. The very nature of the Park, with its indoor and outdoor exhibits and its several vehicular and pedestrian entrances, make it impossible to obtain exact visitor statistics. To overcome this difficulty, the Zoo has developed a reliable sampling system, which was used to determine the FY 1984 estimates.









