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*(as of June 30, 1994)*

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*deceased*
This specimen of Agoniatites vanuxemi, one of the largest Devonian ammonoids ever found, was acquired in 1870, one year after the Museum was founded.

Museum scientists study the skeletal structures of fish to provide insights into their evolutionary relationships.
Among the many notable events of 1993–1994 were the launch of the Museum's 125th-anniversary celebration, the retirement of Chairman William T. Golden, and the election of Anne Sidamon-Eristoff as incoming Chairman. The pages that follow reflect these and other highlights of this memorable year.

This was a momentous year for the Museum in many ways. First, we launched our 125th anniversary, an occasion for celebrating past achievements, of course, but, even more, for pointing the way for the future. Indeed, the formidable accomplishments of our 125-year history—a collection of some 30 million scientific artifacts and specimens, a staff of more than 200 scientists working on the frontiers of their fields, a tradition of expeditions that number in the thousands, such advanced facilities as a state-of-the-art molecular biology laboratory, and the largest natural-history library in the Western Hemisphere, to name but a few—have not only positioned the Museum as a leading force in the scientific community, but have also readied us for action in the public realm. Today, we are able...
both to provide a platform for the debate of the great scientific issues of our time and to be a source of data and research for public-policy formulation for the future.

Thus, the Museum is uniquely positioned to address concerns that are fundamental to the well-being of all humankind and to the survival of our planet. The work that is carried out here every day is dedicated to illuminating the natural world and humanity’s place in it, to understanding human culture throughout the world, and to helping us understand how we relate to one another and to our surroundings, as well as to our past and our future. Yet the Museum is not only a pivotal bridge between humans and nature, the earth and the universe, and different peoples and cultures; we also provide a critical link among a variety of institutions. We are part cultural institution, part research university, part scientific think-tank, part school classroom and laboratory. As such, we look forward to addressing environmental and social problems, to opening our doors even more widely to all people, and to casting our influence beyond, as well as within, our walls and collections through educative efforts utilizing the latest technological advances.

Our anniversary celebration, which continues through December 1995, does still more than honor our history and look toward our future. It also highlights the Museum’s role as a leading scientific research facility and an educational resource center for scientific information.

Perhaps the signal event of the celebration this year was the opening of the *Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives*. These innovative exhibition halls, named in recognition of the support of the Lila Acheson Wallace/American Museum of Natural History Fund, are the first two of six fossil halls being created to tell the crucial story of the evolution of vertebrates. They display the most extensive and important array of fossil mammals ever assembled, exhibiting more real specimens than are on view anywhere else in the world.

For the new fossil halls, the Museum’s fourth floor is being restored to its original architectural grandeur. In the fossil-mammal halls, exhibition spaces have been opened up, exposing long-hidden architectural details; ceilings have been returned to their original, soaring heights; windows have been uncovered, revealing panoramic views of Central Park that had been hidden since the 1960s. The new bright, open spaces are inspiring for the mind and spirit.

Some 100,000 people attended the day-long festival *Celebrate 125! The Rhythm of the World*. This gift from the Museum to the people of the City of New York celebrated cultural diversity and scientific investigation, both of which stand at the core of this institution. An unprecedented group of performers and artisans, representing more than twenty-five cultures from around the world, appeared in the Museum’s exhibition halls and theaters and on Central Park West, four blocks of which were closed to traffic in honor of this extraordinary event. Also included were a wide-ranging variety of hands-on science activities, including a “dinosaur dig” in the park area outside the Museum. Still another element of *Celebrate 125!* was “ID Day,” for which visitors brought their own artifacts to Museum scientists for identification.

Yet another important component of our anniversary celebration was the showing of *Royal Tombs of Sipán*. This special exhibition told the story of the Moche, a sophisticated pre-Inka civilization that dominated northern Peru from A.D. 100 to 800, through artifacts from the richest pre-Colombian tombs ever excavated. Indeed, the spectacular gold, silver, and
gilded-copper objects in the exhibition represent one of the most significant archaeological finds of the century. The exhibition revealed not only the extraordinary culture of the Moche, but also the painstaking science of modern-day archaeology.

Education has always been a central part of the Museum’s underlying mission, and it will continue to be so in the next 125 years. As we reflect on how to increase public awareness of science and culture and the role that these play in our daily lives, we seek also better to appreciate the public’s current understanding of and interest in these areas. To this end, the Museum, in association with Louis Harris and Associates, Inc., produced the *Science and Nature Survey*, designed to assess scientific literacy among Americans and to inform our future educational efforts. In February and March 1994, 1,255 adults across the country were asked questions designed to evaluate two areas: attitudes toward science, including public perceptions of the importance of science to society and to the quality of life; and public knowledge of key areas of the natural sciences, including areas of specific concern at the Museum. While we learned that the public does indeed believe that science is important, and that it plays a role in addressing world problems, the answers to the second set of questions revealed disturbingly low levels of understanding in many critical areas. For example, fewer than half the respondents believe that humans evolved from earlier species; nearly half believe that dinosaurs and humans lived at the same time; and most do not know the cause of the ozone hole. The survey results reinforce our commitment to extend our educational programming beyond our in-house exhibitions and programs to audiences that can be reached through such new distance-learning techniques as video conferencing, as well as through books, films, and software that can be enjoyed at home or in libraries and schools all over the country.

This was also a year of great scientific achievement for the Museum, which is engaged in one of the most active programs of field research in decades. Last summer, a team of scientists from the Museum, working in collaboration with colleagues from the Mongolian Academy of Sciences, discovered in the Gobi Desert one of the richest vertebrate fossil sites ever uncovered. The team discovered the remains of nearly 100 dinosaur fossils, including the fossilized embryo of a theropod dinosaur—the first embryo of a meat-eating dinosaur to be found anywhere in the world, 175 fossil lizards, and, perhaps most significant, the skulls and skeletons of 147 extremely rare early mammals.

Another noteworthy event of this year is the beginning of construction of a second Molecular Biology Laboratory. The work performed in the Laboratory bears on the research conducted throughout the Museum, and will play an increasing role in our work on issues of biodiversity and the environment. A detailed accounting of the year’s scientific work can be found in “Science at the Museum,” beginning on page 17, and in the reports of the individual scientific departments, beginning on page 20.

Annual attendance at the Museum continues to grow, due in part to our expanded outreach to ever more diverse local, national, and international audiences, achieved through the increasing variety of our public programs. The Department of Education has broadened the Museum’s already wide range of multicultural programs for adults and school groups to include one dedicated to Caribbean cultures and one held in conjunction with Asian/Pacific American Heritage Month. Other international programs at the Museum
included Cuba: Nature of an Island, a bilingual exhibition representing the collaboration of scientists from the Museum with colleagues from the Museo Nacional de Historia Natural in Havana, and, of course, Celebrate 125! The Rhythm of the World, which we have described above.

The Museum’s finances continued strong. Efforts to generate revenue and to control the growth of expenses, combined with continued good endowment investment performance, led to a positive operating fund and a strengthened endowment fund. The operating budget for next year is $64.4 million; the endowment fund balance again had a market value of more than $200 million, the income from which contributes to our operating programs. Yet while our financial plans for the future are carefully calculated, economic strains on the city, state, and federal governments, as well as on other sources of funding for the Museum, endure. We will nonetheless continue to play a major role in public education in the natural sciences, as well as in the culture of our region, and will persist in our efforts to attract increasing numbers of visitors to the Museum and Planetarium.

This Annual Report reflects a year of beginnings and endings—it is the first for Ellen V. Futter as president and the last for William T. Golden as chairman. On June 30, after five years of leadership, William Golden, a trustee since 1968, completed his term as chairman of the Board of Trustees and was elected chairman emeritus.

We are delighted to announce that Anne Phipps Sidamon-Eristoff has been named the new chairman. Mrs. Sidamon-Eristoff, who has been a trustee since 1967, brings to the chairmanship both a deep understanding of the Museum and great knowledge of environmental issues. She has been a vice-chairman of the Museum since 1990 and served as vice-president between 1974 and 1979. She has also served on numerous committees over the years, and, in 1984, was chairman of the Museum’s Long-Range Planning Committee. Mrs. Sidamon-Eristoff’s keen intellect, exceptional familiarity with the Museum, and heartfelt commitment to its work will be crucial in helping to bring the Museum into the twenty-first century.

The new president and chairman will be supported in their work for the Museum by the dedicated members of our Board of Trustees, whose keen interest in and enthusiasm for this institution contribute so much to both the Museum’s day-to-day operations and its long-range planning.

We express our deep appreciation to Rudolph W. Giuliani, Mayor of The City of New York, who has been exceptional in his recognition of the Museum as one of the premier cultural and educational institutions in the City. We are immensely grateful to City Council Speaker Peter F. Vallone for his enduring commitment to the Museum, and to Manhattan Borough President Ruth W. Messinger for her consistent and strong support. They are keenly aware of the positive role the Museum plays in the life of New Yorkers. We also thank the commissioners and staffs of the New York City Department of Cultural Affairs, the Department of Parks and Recreation, the Department of General Services, the Landmarks Preservation Commission, and the Art Commission, whose assistance is so important to our efforts. They have been integral to the efforts to maintain and enhance the Museum as a scientific, cultural, and educational resource.

Finally, the great successes of this year and the positive outlook for the future would be impossible without the Museum’s outstanding staff of dedicated men and women, whose vision, intelligence, and commitment to the ideals of the Museum are the bedrock of this great institution. We also offer our heartfelt thanks to the Museum’s many energetic volunteers,
whose work both in the public arena and behind the scenes is appreciated daily.

We hope that in reading this Annual Report you will take pleasure and pride in the wide-ranging achievements, ambitious objectives, and ongoing work of the Museum. This is truly an extraordinary institution, offering stimulating glimpses of life in its broadest sweep and, equally, in its most minute details, uncovering new discoveries and learning about the natural world while educating the public about life’s oldest patterns and most futuristic possibilities. The Museum is always seeking to educate and inspire a wide and diverse community and to address many of the most urgent problems the world faces today. We hope you will learn about the Museum firsthand: please visit us often.

June 30, 1994

William T. Golden
Chairman of the Board of Trustees

Ellen V. Futter
President

A Resolution in Honor of William T. Golden

Resolved that the Board of Trustees expresses its heartfelt appreciation to William T. Golden for his exceptional leadership of the American Museum of Natural History during his years of service on the Board as a Trustee since 1968, as vice-president from 1971 to 1989, and as chairman since 1989. With penetrating intelligence and vision, he led the Board and the Museum through a crucial period of transition, during which the Museum has flourished and achieved a growing visibility and recognition through efforts with which he was intimately associated: The Fourth Floor and Library Project; the Hall of Human Biology and Evolution; a systematic review and improvement of our infrastructure; the air conditioning of significant parts of the Museum; recognition of the importance of improving the appearance of the Museum perimeter; the mounting of the Museum’s first comprehensive fund-raising campaign; and especially dear to his heart, the strengthening and broadening of the role of scientific research.

His deep understanding of the scientific and educational work of the Museum has been apparent in all his endeavors on behalf of the Museum, as has his unflagging commitment to its mission and his generous philanthropy in support of Museum programs, all evidenced very visibly by his attendance at literally hundreds of Museum occasions and his extraordinary effectiveness and grace as our Ambassador Extraordinaire throughout the world. For all these gifts, the Board expresses its profound appreciation, admiration, and affection to William T. Golden.

Board of Trustees
American Museum of Natural History
June 22, 1994
July 1, 1993 – June 13, 1994

On July 1, the Hayden Planetarium opened Star Trek® Exhibition: A Retrospective of the 60s, an exhibition celebrating Paramount Pictures' original television series. The exhibition, which was curated by the National Air and Space Museum, Smithsonian Institution, displayed original costumes, models, assorted props, photographs, and other memorabilia from the series.

In conjunction with the exhibition, the Planetarium also featured Orion Rendezvous: A Star Trek® Voyage of Discovery, a new sky show that transformed the Sky Theater into a Federation Starship. The show, created by the Museum of Science and Industry in Portland, Oregon, utilized a new laser graphics system that guided visitors on an exploration of the various types of stars in the universe and how they evolve. The exhibition was on view through March 6, and the sky show closed June 13.


Celestial Fender Bender: The Peekskill Meteorite featured the meteorite that crashed to Earth in October 1992, as well as the unlucky automobile on which it landed. The exhibition examined the nature of meteorites, how they enter our atmosphere, and where they come from.

August 21, 1993

Kuntunkunku II (shown seated, below, with his entourage), King of the Akyem people of Ghana, led a royal procession of hundreds of Akyems over the Museum grounds during a day of traditional drumming, singing, and dancing. The gala event, which celebrated the diversity of African cultures, included a durbar, or special reception, in the King's honor.

September 17, 1993 – January 2, 1994

This bilingual exhibition, jointly developed by the American Museum of Natural History and the Museo Nacional de Historia Natural in Havana, examined Cuba's rich plant and animal life through photographs, drawings, specimens, and casts of fossil discoveries. It also highlighted the ongoing collaborative efforts by scientists from the two institutions to identify new and extinct species on the island. The exhibition, which was supported by the Arthur Ross Foundation Fund, traveled in the spring to the Museo de las Americas, in San Juan, Puerto Rico. Shown is Paralouatta varonai, a large extinct Cuban monkey.
Entries in the seventeenth annual Mead Festival included sixty documentaries on such diverse subjects as child-rearing practices through the ages, farmers in Nigeria battling drought with a Dutch windmill, Thailand's transvestite cabarets, and racial attitudes toward Aboriginals in Australia. For the second consecutive year, the Festival traveled to cities around the United States following its New York run. The Festival was made possible through support from the Natural Heritage Trust, New York State Council on the Arts, the Government of Canada/Gouvernement du Canada, Cultural Services of the French Embassy, and the French Ministry of Foreign Affairs.

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**Antarctica**

**October 22, 1993 – January 2, 1994**

The geography, history, and diverse animal species of the world's coldest continent were explored in *Antarctica*. The Gallery 3 exhibition featured wildlife dioramas, models of Antarctic ice features, rock samples, and interactive multimedia displays. Museum scientists who had done fieldwork in the region provided a five-part lecture series in conjunction with the exhibition, and the Naturemax Theater featured the IMAX film *Antarctica*, which depicted the history, delicate ecology, and awesome beauty of the world's southernmost continent. *Antarctica* was organized by the Science Museum of Minnesota, St. Paul.

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**Origami Holiday Tree**

**November 23, 1993**

Hundreds of visitors, a children's choir from I.S. 44, and members of the Big Apple Circus were on hand to mark the start of the holiday season with the twenty-first annual lighting of the Origami Tree. The fifteen-foot tree, which stood in the Theodore Roosevelt Memorial Hall, featured more than 2,000 origami dinosaurs and other Museum-related animals and objects.
Convocation for
President Ellen V. Futter

December 1, 1993
Ellen V. Futter became president of the American Museum of Natural History on November 8, succeeding George D. Langdon, Jr. On December 1, Ms. Futter, who previously was president of Barnard College for thirteen years, was welcomed to her new post at a gathering that included Mayor-elect Rudolph W. Giuliani (pictured); representatives of the State and City of New York; leaders from cultural, educational, scientific, philanthropic, and corporate communities; and Museum trustees and staff.

Special Environmental
Lecture-Luncheon

January 19, 1994
Special guest Stephen Jay Gould, professor of paleontology at Harvard University, discussed the evolutionary relationships of species and how they are affected by their environment. Proceeds from the event, which was organized by Mrs. John Macomber, chairman, and Mrs. William Evarts and Mrs. Thomas Pulling, cochairmen, benefited the Museum’s ongoing research and programs in environmental conservation.

“Global Challenges”
Lecture Series

January/February 1994
Paul M. Kennedy, the J. Richardson Dilworth Professor of History at Yale University and author of the best-selling book Preparing for the Twenty-first Century, was among the scholars gathered for a four-part lecture series, “The Accelerating Global Crisis: Meeting the Challenges.” The series focused on the environmental, demographic, economic, and urban challenges facing the world in the twenty-first century.

Annual Fall Gala

December 2, 1993
This year’s Gala, Celebrate This Island Earth, honored President Ellen V. Futter. A tropical rainforest motif reflected the Museum’s leading role in addressing the critical environmental issues of our day. Proceeds from the event, which was underwritten by Estée Lauder Companies, benefited ongoing scientific research and public programming related to conservation of wildlife and protection of the environment. Shown above, from left to right, are Anne Sidamon-Eristoff; Tess Clairmont and Va Maughan, cochairmen of the event; Ms. Futter; William T. Golden, chairman of the Museum’s Board of Trustees; Constance Spahn, chairman of the event; and Karen J. Lauder and Cathy Eckstein, cochairmen.

This Year at the Museum
January 20, 1994

On January 20, the Museum and the New York Times hosted a breakfast in support of the Ms. Foundation for Women's second annual "Take Our Daughters to Work Day." The event, which was hosted by Ellen V. Futter, president of the Museum, and Arthur Sulzberger, Jr., publisher of the Times, was attended by nearly 300 guests. Speakers included Marie C. Wilson, president of the Ms. Foundation; Linda Ellerbee, journalist and president, Lucky Duck Productions; Carol Jenkins, WNBC anchor; Mr. Sulzberger; and Ms. Futter. Gloria Steinem and Marlo Thomas were special guests.

January 25, 1994

The television program "Dinosaurs of the Gobi," which featured Museum scientists during the 1992 season of their joint expedition to the Gobi Desert with the Mongolian Academy of Sciences, premiered in January on the PBS series NOVA. Cameras chronicled progress in the field, including the discovery of an important new fossil animal, Mononykus, which is a link to the evolutionary relationship between dinosaurs and modern birds. The program also examined the Museum's earliest work in the region, the Central Asiatic Expeditions of the 1920s, which led to the discovery of the first dinosaur eggs. Adapted from a BBC production, the NOVA show was repeated at intervals during the year.

February 4 - May 1, 1994

Visitors explored the domain of one of the world's most maligned creatures in Sharks! Fact and Fantasy, which was on view through May 1. Organized by the Los Angeles County Museum of Natural History, Sharks! included live specimens, models, video footage, and interactive displays, and was the most comprehensive exhibition of its kind ever mounted. The IMAX film Search for the Great Sharks, which ran daily in the Naturemax Theater, allowed viewers to observe closely the world's largest and most elusive sharks: the blue, whale, and great white.

March 3, 1994

The Hall of Ocean Life was transformed for an evening into "A Night in Casablanca," replete with Moroccan bazaars, a replica of Rick's Cafe, and traditional Moroccan decorations. The event, which was coordinated by the Junior Committee and chaired by Joshua and Tamara Leuchtenburg, benefited the Museum's ongoing multicultural educational programs, including special events, films, and lectures.
March 21, 1994
Anne Phipps Sidamon-Eristoff was elected chairman of the Museum's Board of Trustees, effective July 1. Mrs. Sidamon-Eristoff, pictured above, a trustee of the Museum since 1967, has been one of the most active and dedicated members of the Board, serving as vice-chairman since 1990, as founding chairman of the Friends of the American Museum of Natural History from 1990 to 1993, and as vice-president between 1974 and 1979. Mrs. Sidamon-Eristoff will succeed William T. Golden, chairman since 1989, who was elected chairman emeritus.

Fourth Annual Environmental Lecture-Luncheon
April 20, 1994
Guest Speaker Timothy E. Wirth (pictured), former senator from Colorado and counselor to the State Department, discussed population and development as a foreign-policy issue. The luncheon was dedicated to the memory of the late Julia Serena di Lapigio, who was a Museum trustee. Proceeds from the event, which was organized by Mrs. John D. Macomber (pictured), chairman; Mrs. Robert Garrett, honorary chairman; and Mrs. William M. Evarts, Jr., and Mrs. Thomas L. Pulling, cochairmen, benefited the Museum's ongoing research and programs in environmental conservation.

On April 20 the Museum announced the preliminary results of its Science and Nature Survey, developed in conjunction with Louis Harris and Associates. The survey was conceived on the occasion of the Museum's 125th anniversary to gauge public perceptions about science and to gather information to strengthen the Museum's role in enhancing science education nationally. The initial survey results provided insight into the public's attitude toward science: On the negative side, 37 percent of Americans believe that science poses major risks to humanity, and 51 percent understand less and less about what scientists are doing today. On the positive side, 76 percent report that they enjoy learning for its own sake. The survey also showed that while Americans are seriously concerned about major science-based issues facing our society, such as threats to the environment and extinction of species, the majority of American adults lack much of the basic scientific background and knowledge needed to understand these and many other issues. For example, 35 percent of adult Americans believe that humans lived at the same time as dinosaurs, and an additional 14 percent were not sure; 46 percent do not believe that humans evolved from earlier species of animals, while an additional 9 percent were not sure; 65 percent do not know how many planets there are in the solar system; and 87 percent are not able to identify the cause of the hole in the ozone layer. This gap between perception and understanding of critical scientific issues is especially important in a democracy, most notably in terms of setting national priorities and electing representatives. The survey results will assist the Museum in planning exhibitions and education programs. A complete survey report is under preparation.
April/May 1994

The Museum's Center for Biodiversity and Conservation presented a five-part lecture series entitled "Species at Risk: Meeting the Challenge of the Global Extinction Crisis." The series examined the current worldwide extinction crisis and its causes, and explored the complex solutions required to sustain Earth's biodiversity.

April 26 and 27, 1994

A gala evening of dining and dancing "under the stars" was held at the Hayden Planetarium in celebration of the solar eclipse, which was visible the next day. Planetarium galleries were transformed to create the illusion of deep space, and a custom-designed 3D laser-light show featured a simulated eclipse. Proceeds from the event, which was cochaired by James G. Niven and Perri Peltz and underwritten by Johnnie Walker Black Label, went to benefit the Planetarium.

May 9, 1994

The Museum hosted more than 100 middle- and high-school students from the five boroughs who competed in the citywide finals of the 56th Annual New York City Schools Science and Technology Expo. The Expo was presented by the New York Academy of Sciences with cosponsorship of the New York City Board of Education and principal support from NYNEX.

May 14, 1994

The Museum launched its 125th-anniversary celebration with the opening of the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives, the first exhibition halls to be completed in a spectacular renovation and restructuring of the Museum's fossil halls. The wing is named in recognition of the generous support the Museum has received from the Lila Acheson Wallace/American Museum of Natural History Fund, which was established in 1980 at the New York Community Trust by Mrs. Wallace, the cofounder of The Reader's Digest Association, Inc. Additional support for the fossil-halls renovation came from the Trustees of the American Museum of Natural History, the City of New York, Exxon Corporation, Paul and Irma Milstein, The Kresge Foundation, and the Miriam and Ira D. Wallach Foundation.
June 4, 1994

As part of the Museum's 125th-anniversary celebration, nearly 100,000 people participated in a free, day-long festival of cultural diversity, scientific exploration, and discovery—the Museum's gift to the City of New York. Visitors enjoyed performances and demonstrations, both inside and outside the Museum, by hundreds of artists from more than twenty-five cultures. Performers included Japanese Taiko drummers, Colombian Klezmer musicians, African stilt dancers, Navajo weavers, and Czechoslovakian puppeteers. On 81st Street, children excavated a cast skull of Tyrannosaurus rex from a recreated dinosaur dig, while inside the Museum, scientists identified fossils and artifacts brought for "ID Day." Central Park West was closed for the event, and the festival concluded with a series of performances on an outdoor stage by such artists as Ladysmith Black Mambazo, Michael Moschen, Buckwheat Zydeco, and Willie Colón. The grand finale was a multicolored laser-light and sound show, which was beamed onto a four-story screen on the Museum's Central Park West façade. The twelve-hour celebration was made possible in part by Con Edison, AT&T True Voice, Sony, the Community Affairs Department of the New York Times, el diario/LA PRENSA, MIX 105 WMXV, 13-WNET, Frederick P. Rose, and Meccano/ERECTOR.
This Year At The Museum

June 6, 1994

The second annual spring dinner dance honored Maurice R. Greenberg, chairman and CEO of American International Group, Inc. The dinner also celebrated the opening of the La La Acheson Wallace Wing of Mammals and Their Extinct Relatives. Henry A. Kissinger was honorary chairman. Proceeds from the evening benefited educational programming developed in association with the fossil-mammal halls. Shown above, from left to right, are William T. Golden, chairman of the Museum's Board of Trustees; James D. Wolfensohn, president and CEO of American International Group, Inc.; Mrs. Maurice Greenberg; Richard L. Gelb, chairman of the Board of Bristol-Myers Squibb Company; Ellen V. Futter, president of the Museum; Anne Sidamon-Eristoff, chairman-elect of the Museum's Board of Trustees; and Gary C. Wendt, president and CEO of GE Capital.

June 24, 1994

Opening on June 24, Royal Tombs of Sipán was a spectacular special exhibition featuring gold, silver, and gilded-copper treasures of the Moche, a sophisticated pre-Inka civilization that dominated northern Peru from A.D. 100 to 800. Organized by the Fowler Museum of Cultural History at the University of California, Los Angeles, the exhibition was sponsored by ASARCO Incorporated, Southern Peru Copper Corporation, Banco de Credito del Perú, Bear Stearns & Company, Aeroperú/FOPTUR, CS First Boston Corporation, and el diario/LA PRENSA. On June 12, the exhibition was represented in the annual Puerto Rican Day Parade by a float that carried a Peruvian music and dance ensemble, bedecked in Moche-style costumes. On June 22, an opening preview and reception was attended by more than 1,000 guests, including many prominent members of New York City's Peruvian community. Pictured at right, from left to right, are Exhibition Curator Craig Morris, Museum President Ellen V. Futter, and Peruvian Prime Minister Efraim Goldberg with Mrs. Goldberg and their daughter.

June 16, 1994

On June 16, the Hayden Planetarium launched its new sky show, Update: The Universe, narrated by television and radio commentator Charles Osgood. Presented in a newsmagazine style, the show explored recent astronomical discoveries, the latest research into extraterrestrial life, and clues to the dawn of creation.
Since its founding 125 years ago, the American Museum of Natural History has been one of the world's preeminent science and research institutions, renowned for great scientific achievement as well as for collections and exhibitions that illuminate millions of years of life on Earth, from the birth of the planet through the present day. Some 200 scientists, including more than forty curators, conduct innovative research programs in anthropology, biology, earth and planetary sciences, molecular systematics, and paleontology.

The Museum's unparalleled collections comprise over 30 million artifacts and specimens, acquired through fieldwork on thousands of expeditions as well as through contributions from many sources. Remarkably, less than 2 percent of those collections is on view in the Museum's forty exhibition halls. The rest are housed in the scientific departments at the Museum, where they are used by scholars and researchers from around the world in their efforts to understand critical scientific and environmental issues.

The study of vertebrate paleontology has flourished at the Museum since before the turn of the century, and the Museum remains at the forefront of research on fossil life-forms. The Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives, which opened in May 1994, comprises the first two of six permanent halls being created to trace the history of vertebrate evolution, using the most comprehensive and scientifically important collection of fossils in the world.

The Museum's historical quest to identify and describe Earth's life-forms has taken on profound importance in light of current worldwide losses of plant and animal species. Today, the Museum is working with the international research community to create a scientific frame-work for conserving and managing global biological resources.

In this, its 125th-anniversary year, the Museum is in the midst of one of the most active programs of field research in decades:

- In the summer of 1993, during the fourth year of a joint expedition to the Gobi Desert of Mongolia, scientists from the Museum and the Mongolian Academy of Sciences discovered at Ukhaa Tolgod one of the world's richest sites of vertebrate fossils. Among many important discoveries made at the site was the first embryo of a meat-eating dinosaur ever found. The embryo is providing new insights into dinosaur behavior and is increasing our understanding of the link between dinosaurs and birds.

- In November 1993, as part of the Turtle Recovery Program, a project of the Museum's Center for Biodiversity and Conservation, negotiations among scientists, cattle ranchers, and the Mexican government resulted in an agreement to preserve 45,000 acres of grassland in Chihuahua, home to the most robust populations of the endangered Bolson tortoise. The Bolson was identified by the Program as a high-priority species on the global turtle-conservation list. The agreement saves the tortoise from extinction while satisfying the agricultural and economic needs of the community.

- In the summer of 1994, Museum scientists traveled to Tanzania to help launch a long-term, comprehensive biodiversity survey within its national parks in collaboration with the Wildlife Conservation Society. The work included initial training of in-country research staff.

- In 1994, for the fourth consecutive season, a research team traveled to French
Guiana to document the diversity of mammals and previously unknown life forms in a single rainforest locality. They are studying one of the few Neotropical sites where long-term mammal inventories have been attempted. The results will provide important information about biological distribution in the Neotropics and will serve as a database for use in planning and implementing conservation programs.

- In Cuba, Museum scientists marked the fifth year of a collaborative effort with Cuban scientists to identify the patterns and causes of the island's mammal extinctions. The information gathered in Cuba and on other islands has application in threatened ecosystems around the world. The team's recent work has also offered new insights into continent formation.

- On St. Catherines Island, off the Georgia coast, Museum anthropologists continue their twenty-year exploration of the 4,000 years of human history contained in the island's archaeological record.

During this century of unparalleled scientific advancement, Museum scientists have been influential in the development of new systematic and evolutionary theory as well as new methods of data analysis. The Museum's Molecular Systematics Laboratory continues its research in mapping phylogenetic relationships as well as in conservation genetics, which is important for the understanding and management of endangered populations. In response to the expanding needs of the Museum's scientific staff, construction began this year on a second molecular systematics laboratory, to be completed in 1995.

Essential to the Museum's research program is the training of the next generation of scientists. Indeed, the Museum has the oldest and largest doctoral and postdoctoral training program of any scientific Museum in the world, dating from 1908. Through collaborative Ph.D. programs with Yale University, Columbia University, Cornell University, New York University, and the City University of New York, the Museum currently enrolls nearly thirty graduate students who work directly with its curators. Students study issues as diverse as conservation genetics, molecular evolution, biogeography, ecology, and archaeology. In addition,
the Museum's Center for Biodiversity and Conservation offers graduate students from around the world an extensive systematic biology training program. For 125 years, the American Museum of Natural History's vital mission to discover and understand the natural world has been embodied in research and expedition. As a leader in science and education, the Museum is now readying itself for an increasingly public role. Today more than ever before, the Museum is prepared to serve as a resource and advisory body for the crafting of public policy regarding many of the critical questions we all face. Among these are questions relating to how we can prevent species loss from continuing at its present rate, and how we can learn better to live with each other and with other life-forms. The Museum is poised at the forefront of the scientific research that will help answer these questions, and that will thereby help ensure the survival of our planet.
The mission of the Department of Anthropology is to increase our knowledge of both the cultural and biological aspects of the human species and to disseminate this knowledge in both popular and scientific publications. The Department also maintains and enhances extensive collections of objects that document the diversity of human culture and biology. A long-term program, begun in 1978, has as its goal the storage of all of those objects in state-of-the-art facilities.

Department Chairman and Curator Ian Tattersall completed a manuscript for a book on human evolution and continued his research into the origins of our own species, *Homo sapiens*. He also commenced work on a book about the Neanderthals. From late January to early March 1994, in collaboration with Research Associate Jeffrey H. Schwartz, Dr. Tattersall visited the Socialist Republic of Vietnam to continue a program of cooperative research with colleagues at the Institute of Archaeology, in Hanoi, and at the Council for the Social Sciences, in Ho Chi Minh City. They studied the fossil-primate collections at the Institute, and were joined by James Clark, postdoctoral fellow in the Museum’s Department of Vertebrate Paleontology, in a survey of Miocene sediments in northern Vietnam. In early 1994 Dr. Tattersall was awarded a grant by the Richard Lounsbery Foundation for a conservation-oriented survey of the Comoro Islands, off the southeastern coast of Africa, and in November 1993 he was presented with the Achievement Award of the Institute of Human Origins at a ceremony held at the Museum.

Robert L. Carneiro, curator, continued work on two book-projects. One is a technical work on the subject of cultural evolution, while the other, *The Muse of History and the Science of Culture*, is based on a series of lectures given at the Museum in 1992. Dr. Carneiro also conducted research on the evolution and development of chiefdoms.

In collaboration with Research Associate Ruth S. Freed, Stanley A. Freed, curator, continued the analysis and publication of data collected in a North Indian village from the 1950s through the 1980s. Their monograph *Ghosts: Life and Death in North India*, was published this year. They also continued work on two additional monographs: one on the festival year in a North Indian village, the other an analysis of changes in the village owing in large part to the Green Revolution. In addition, Dr. Freed is serving as chief consultant on a book about North American Indians, to be published by Dorling Kindersley in the fall of 1995.

Craig Morris, curator, coordinated the Museum showing of *Royal Tombs of Sipán*, which opened on June 24, 1994. A section dealing with the archaeology of the Peruvian site of Sipán, including a replica of one of the tombs, was added for the New York venue of the exhibition, which was organized by the Brüning National Archaeological Museum, in Peru, and the Fowler Museum of Cultural History, in Los Angeles. Dr. Morris also directed new excavations at the Inka warehousing site of Cotapachi, in Bolivia, and continued the analysis of materials and databases from previous fieldwork in Chinchu and Huanuco, in Peru. His popular book, *The Inka Empire and Its Andean Origins*, coauthored with Adriana von Hagen, was published by Abbeville Press, Inc., and the American Museum of Natural History in October 1993.

Curator Enid Schildkrout returned to field research in Kumasi, Ghana, where
she had worked in the 1960s, to study Islamic history and social change. She completed her third year as editor of Museum Anthropology and was elected to a two-year term as president of the Council for Museum Anthropology. The exhibition African Reflections: Art from Northeastern Zaire, which was curated by Dr. Schildkrout and opened at the American Museum of Natural History in 1990, completed its four-year tour at the Elvehjem Museum of Art at the University of Wisconsin, Madison, where Dr. Schildkrout gave a public lecture and trained docents.

When Curator Laurel Kendall began research on Korean shamans nearly twenty years ago, many Koreans assumed that the practice was dying out—that an advanced industrial society would hold no place for religious practices that dramatized appearances by gods and ancestors. Yet the shamans remained and have gained a degree of legitimacy as bearers of a distinctive cultural expression. Drawing on her own long familiarity with Korea, Dr. Kendall has begun a wide-ranging examination of the transformation of shaman practices in late twentieth-century Korea. In her most recent research and writing, she has been particularly concerned with how, in the process of transforming religious rituals into cultural performances for popular consump-

Associate Curator Charles Spencer surveys the Valley of Oaxaca, Mexico, where his research focuses on three archaeological sites near the town of San Martín Tilcajete.
tion, the voice of the female shaman has been drowned out by that of the authoritative male commentator.

Dr. Kendall also completed a manuscript for a book describing Korean weddings as a flash point for Korean arguments about tradition and modernity, national identity versus Western influence, conspicuous consumption versus moral circumspection, and how these issues impinge upon the changing lives of women and men. This year also saw the publication of Asian Visions of Authority: Religion and the Modern States of East and Southeast Asia, a conference volume that Dr. Kendall coedited with Charles F. Keyes and Helen Hardacre and to which she contributed.

During 1993–1994 Associate Curator Charles Spencer initiated a five-year archaeological field project in the Valley of Oaxaca, Mexico, sponsored by the National Science Foundation (NSF). The research focuses on three large archaeological sites that were successively occupied between 700 B.C. and A.D. 200, the time period that saw the emergence of the Monte Albán state, Mesoamerica's first urban state society. During the first season of work, one of the three sites was intensively mapped and sampled through controlled surface collecting. With the cooperation of the Instituto Nacional de Antropología e Historia (INAH) and the local authorities, a field laboratory was established in the main municipal building of the nearby town of San Martín Tilcajete.

Collections Management

With major funding from the National Endowment for the Humanities, in 1993–1994 the Museum's Construction Office built a new facility for the Asian ethnographic collection. The new climate-controlled storage area has both compact and stationary cabinetry. Included in the project was the installation of an elevator that ties together and serves the Department's major storage areas. During construction, the Asian collection was prepared for the move to the new area.

Objects Conservation

During the past year, in concert with Exhibition Department staff, the Department's objects-conservators have conducted full refurbishment of exhibits in the Pacific, Plains Indians, and Eskimo halls. This included the fabrication of two new mannequins for the Plains Indians Hall, and the conservation of the artifacts on them. Some fifty objects were processed and treated for loan to other institutions and the groundwork was laid for two large conservation projects on the Department's older research collections: the Chinese shadow-puppet collection of more than 100 puppets made by Berthold Laufer at the turn of the century, and (with help from the Kress Foundation) Marshall H. Saville's collection of Mexican ceramic urns from Oaxaca, dating from the 1890s. Daria Keynan, paper conservator, completed work on the Cronau album, a collection of more than 150 Native American drawings, and has begun work on two ledger books. Paper-conservation work is supported by grants from the National Endowment for the Arts and the Getty Grant Foundation.

Postgraduate internship training continues, also with support from the National Endowment for the Arts and the Getty Grant Foundation. Two Department conservators, Judith Levinson and Linda Nieuwenhuizen, teach in the art conservation program at New York University's Institute of Fine Arts.
Cultural Resources

The Museum created the Cultural Resources Program to respond to its obligations under the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990. This year, the Cultural Resources Program compiled summaries on objects currently in the North American ethnographic and archaeological collections and sent them to about 400 federally recognized Native American and Native Hawaiian organizations. The Museum continues to meet this federal mandate through the Program’s ongoing consultation with native groups regarding material included in its collections and through the process of verifying its archaeological database.

Collections Database

On-line documentation of the North American ethnology collection was completed as more than 14,000 records were entered into the catalog database. Work continued on the Department’s state-of-the-art image database. With support from the National Endowment for the Humanities, more than 20,000 Northwest Coast and Eskimo objects were photographed by Collections Photographers Peter Siegel and Keith Boro. This database, developed and maintained in-house by William Weinstein, the Department’s Systems Analyst, provides a unique service to the scientific community. The system displays catalog information and associated digital images, giving researchers the ability to browse or to explore in depth an entire collection on-line. At the same time, the system frees staff time that would have been spent supervising researchers, and diminishes the handling of these fragile objects.

This project has served as a prototype for other museums considering similar systems. Indeed, over the past three years the Department has become an established leader in the field of museum digital imaging and has forged many useful alliances with major corporations that design and develop digital-imaging equipment. Eastman Kodak Company and Leaf Systems have provided support for this project over the past year. At year’s end a beta test of Leaf Systems’ newest digital camera was begun. As research into and testing of new equipment and software continues, the Department will remain a resource for other institutions, providing consultation and demonstrations to the museum community.

Textile Conservation

The Textile Conservation staff is dedicated to the care and treatment of textiles in the Anthropology Department’s collections. During the past several years, new standards have been set for the storage and maintenance of archaeological textiles. The relocation of the Andean textiles into new storage facilities is nearing completion, while grants from several private foundations have permitted the staff to continue applying preventive conservation measures to several hundred more of these textiles.

The textile conservators have also treated and prepared for exhibition a number of costume pieces for loan to other institutions. In addition, their expertise in the handling of costumes and accessories was essential in the dressing of approximately thirty-five figures for Star Trek® Exhibition: A Retrospective of the 60s.

The Textile Conservation staff continues to assist an increasing number of scholars and researchers seeking access to our collections. Tours and lectures on our conservation and storage methods are given on a regular basis to students from conservation and museum-studies programs. As a special project, Textile Conservation has collaborated with the Museum Shop in selecting Andean designs to be adapted for scarves and ties, which have been produced in conjunction with the exhibition Royal Tombs of Sipán.
Astronomy and Planetarium

This was an active year for the Hayden Planetarium on many levels. Of continuing primary importance was the Museum's ongoing evaluation of proposals and recommendations made by a Planetarium Visiting Committee in regard to the modernization of the Planetarium's exhibit areas and its Guggenheim Space Theater.

The principal sky show, *Orion Rendezvous: A Star Trek® Voyage of Discovery*, which opened in July, used a science-fiction voyage as a tool to teach the principles of stellar evolution. It was remarkably popular, and earned the highest ticket-revenue of any show in the Planetarium's history. In tandem with the sky show, the Planetarium presented a 6,000-square-foot exhibition titled *Star Trek® Exhibition: A Retrospective of the 60s*. Organized by the Smithsonian Institution's National Air and Space Museum, the exhibition featured costumes and artifacts from the original television series, and addressed the social changes of the late 1960s in American society.

In June 1994 the Planetarium opened a new sky show, *Update: The Universe*, written by Planetarium Producer/Writer Suzanne Chippindale and narrated by veteran CBS new anchor Charles Osgood. *Update: The Universe* explores recent discoveries in the solar system, the Milky Way, and the universe. The production includes some of the latest available spacecraft images and uses the first full-color laser graphics system of any planetarium in the world.

More than 100,000 schoolchildren of all ages attended the Planetarium's selection of nine different educational sky shows. Included were the four shows that are always presented live by Planetarium staff: *Skies of the Season, What's Up, Robots in Space, and Wonderful Sky*, which features the Sesame Street Muppets. Among the additional presentations in the Sky Theater were the holiday sky show, *The Star of Christmas*, and the tenth annual holiday concert “Under The Stars,” performed by the New York Philomusica playing the music of Bach, Mozart, and Beethoven.

A variety of courses that ranged from relativity and cosmology to meteorology and celestial navigation were taught by William A. Gutsch, chairman of the Hayden Planetarium, and other experts from the metropolitan area and beyond. Amie Mastrangelo, production assistant, and Ms. Chippindale conducted in-house workshops for astronomy and space-science teachers under a grant from the Title II Staff Development Program for the New York City Board of Education.

Frontiers in Astronomy and Astrophysics, a continuing lecture series, featured visiting research astronomers who spoke on a variety of topics, from supernovae to radiation from the “Big Bang.” Speakers included Thomas Bania of Boston University, Dale Cruikshank of NASA's Ames Research Center, Katherine Garmian of the University of Colorado's Joint Institute for Laboratory Astrophysics, Stephen Maran of NASA's Goddard Space Flight Institute, and George Smoot of the University of California's Lawrence Berkeley Laboratory. The highlight of the series was a standing-room-only lecture from amateur astronomer David Levy, the codiscoverer of comet Shoemaker-Levy 9, which is predicted to collide with Jupiter in July 1994. Kevin Zahnle, of the Ames Research Center, also lectured on the collision.

A dramatic new 8-by-24-foot mural by Dennis Davidson, the Planetarium's astronomical artist, was installed in the main lobby. The mural, a striking work that shows Earth and the moon from space, greets visitors who enter from 81st Street.
A view of
the sky show
Orion Rendezvous:
A Star Trek®
Voyage of
Discovery.
Mr. Davidson also organized *Man on the Moon: The Apollo Adventure*, an exhibition created by ERECTOR and the Hayden Planetarium to mark the 25th anniversary of the first manned landing on the moon. President Ellen V. Futter and astronaut Alan Shepard unveiled the exhibition, which opened in May and included half-scale models of the Lunar Lander and Lunar Rover, built entirely with ERECTOR set pieces. To complement the exhibition, which also featured memorabilia from Apollo astronauts and slide and video presentations, Production Designer Brian Sullivan built a full-scale model of *Clementine*, the first spacecraft to return to the moon since the Apollo era.

When the United States witnessed an annular eclipse of the sun in May, the Planetarium staff set up telescopes with special solar filters to accommodate the tremendous public interest in the spectacle.

A generous gift from The Perkin Fund made possible state-of-the-art computer graphics workstations that will allow the Planetarium staff to create dramatic new artwork and animation sequences for all sky shows, courses, and exhibitions. The City of New York provided funding for advanced computer automation equipment used to control sky-show sequences, and the Planetarium also received private foundation funding to acquire advanced computer graphics equipment. In addition, through recent Internet links, the Planetarium can now receive digital images from the Hubble Space Telescope Science Institute and other repositories of NASA data. This on-line access, coupled with the new graphics workstations, will greatly facilitate the Planetarium’s ability to share with the public the latest astronomical discoveries.

Dr. Gutsch continued as President of the International Planetarium Society.

Mr. Davidson continued as President of the International Association for the Astronomical Arts, and Planetarium Librarian Sandra Kitt became chair-elect of the Museum-Arts and Humanities Division of the Special Libraries Association.
The activities of the Department of Entomology reflect the variety of its vast collections, which comprise more than 17 million specimens of living and extinct arthropods. Included in the collection are at least 300,000 living species (many still undescribed), representing about 30 percent of all species on earth. Tens of thousands of specimens are added yearly, largely through the Department’s fieldwork in Central and South America. The importance of the Museum’s collection has been recognized by the National Science Foundation (NSF), which awarded the Department its fourth grant for expansion of its facilities. Associate Curator David Grimaldi became the new chairman of the Department.

Associate Curator James Carpenter continued his research into the evolution of social and other stinging wasps (a grouping which includes the bees). He also published a reclassification of the twenty-eight genera of polistine, or paper, wasps. This subfamily has the most species (about 800) among the vespid social wasps and is also the most diverse behaviorally and morphologically. Many species of polistine wasps are familiar to the layperson by the nests they construct out of a papery material they mold from wood fibers. Relationships among the species revealed that their distribution today is probably the result of late Cretaceous continental drift rather than of more recent, Tertiary dispersal. With Denis Brothers (University of Natal, South Africa), Dr. Carpenter coauthored a study on the phylogeny of the stinging wasp families, or Aculeata. This research is being extended by Kalbfleisch Fellow Donat Agosti, who is sequencing DNA from one of the largest and most ubiquitous families of stinging wasps: the ants. Collaboration between Drs. Carpenter and Agosti will address the classification of the world’s ant subfamilies.

Among the stinging wasps, various forms of parasitism, all of which exploit the nest of another species, have evolved. In social parasitism, an individual of one species usurps the reproductive role of the queen of another species yet retains the worker force of her own colony. Recent work coauthored by Dr. Carpenter and five colleagues from other institutions tested a hypothesis known as Emory’s Rule. This states that social parasites are more closely related to their hosts than to any other species. The study, which focused on vespid social wasps, found that in fact social parasites are all more closely related to each other than to their hosts.

Curator Jerome G. Rozen studies the evolution of cleptoparasitism in bees. Cleptoparasitic bees (also called cuckoo bees) use nests and provisions of other bees to house and feed their young. This behavior has evolved many times among...
the 21,000 species of bees; the largest assemblage with this way of life is the Nomadinae, which is a particular focus of Dr. Rozen’s research. To reconstruct the evolutionary history of cleptoparasitism, the phylogeny of the group must be studied. Various features of bees, including those of the larvae, are used to assemble a phylogeny. Much less is known about larvae than about adult bees, and Dr. Rozen’s fieldwork emphasizes nesting biology. For example, in the spring of 1993 he discovered the nest of the solitary, ground-nesting andrenid bee *Ancylandrena* at several localities in Arizona. Returning to the sites in late summer, he recovered the mature larvae of the parasitic species and of its host bee, *Hexepeolus rhodogyne*. This bee is the sole species in its tribe, and the tribe is the last of many in the Nomadinae whose larvae were unknown. Dr. Rozen’s discovery will finally allow a complete analysis of the phylogeny of all the tribes in the Nomadinae.

The last shipment of the collection of aculeate Hymenoptera was received from Manfredo Fritz, of Salta, Argentina. This vast personal collection was acquired through the generosity of Robert G. Goelet, chairman *emeritus* of the Museum’s Board of Trustees. While the Museum already has one of the largest collections of bees in the world, this addition represents an important expansion of the Department’s holdings in bees and wasps from South America.

Lee Herman, curator, is in charge of the most diverse collections in the Museum: the beetles. With about 300,000 described species, beetles represent one in every three or four species of all organisms on Earth. Dr. Herman’s research centers on the family of rove beetles, or Staphylinidae, which in itself is one of the largest families of animals in the world (about 20,000 species). Understandably, no world catalog of the species of this family exists, despite the need for such a comprehensive reference. Dr. Herman is preparing such a catalog, which will include the major references to all species (exclusive of the subfamily Aleocharinae) since 1758. This year, 900 references were examined and more than 6,600 species added to the catalog. In addition, Dr. Herman continued his monographic revision of the subfamily Paederinae, which includes more than 200 genera. In order to reconstruct the phylogeny of this large, complex group of beetles, Dr. Herman is assembling a large data-set gleaned from numerous characters of the adult beetles.

Continuing his exploration of Chilean spider fauna, former Chairman Norman Platnick led two expeditions, one of them through the Atacama Desert to the little-collected high Andes of the far north. He was accompanied by Cornell University graduate student and Museum fellow Kefyn Catley (studying Chilean hahniid spiders), Research Associate Robert T. Allen (studying primitive insects), and arachnologists Martín Ramírez, of Argentina, and Raúl Calderón, of Chile.

Laboratory studies included projects on Chilean caponiids and trachelines. Although only one caponiid spider from Chile has been recorded, the fauna includes at least four species, each belonging to a different genus, three of which are new. As usual, the Chilean fauna proved quite different from that of the rest of the Neotropics; it includes no representatives of the Nopinae (the group...
containing most New World caponiids). The tracheline spiders of Chile and Argentina also proved to be much more diverse than expected, including at least twenty-one species belonging to a genus occurring as far north as the northern United States.

Dr. Platnick also completed the second volume of his worldwide spider catalog. Published jointly by the Museum and the New York Entomological Society, the book covers literature published over the last four years, as well as thousands of synonymies and transfers of species made between 1940 and 1980.

Curator Randall T. Schuh worked intensively with international colleagues during the year. For a period of six months beginning in October 1983, Jocelia Grazia, Department of Zoology, Universidade Federal de Rio Grande do Sul, Porto Alegre, Brazil, was a visiting scientist in the Department. Funded by a Brazilian National Research Council fellowship, she worked with Dr. Schuh on the phylogenetic relationships of the families of stinkbugs, the Pentatomidae. Dr. Grazia utilized the Museum's extensive collections in this group to produce a scheme of relationships based on seventy taxa. Dr. Schuh assisted in selection of taxa, analysis of characters, and phylogenetic analysis. During April and May 1984, Izyaslav M. Kerzhner, Zoological Institute, St. Petersburg, Russia, was resident in the Museum, working closely with Dr. Schuh on an NSF-funded Catalog of Miridae of the World. Dr. Kerzhner, a world expert on the group, brought to the project his unparalleled knowledge of the large and complex Palearctic fauna and of the world literature on it.

Associate Curator Robert DeSalle is working with numerous students and postdoctoral investigators on a variety of issues relating to molecular systematics.

A major aspect of this research involves conservation genetics, the study of genetic features of threatened and endangered individuals, populations, and species. Conservation genetics is important for the management of endangered populations. For example, assessing species and subspecies status is fundamental to federal legislation for protection. Five projects are being conducted in conservation genetics, one on lemurs and four on endangered insects, specifically three species of moths and a tiger beetle, Cicindela dorsalis. The tiger beetle is restricted to coastal dunes of the eastern United States and has been extirpated from most of its range because of habitat disturbance. Dr. DeSalle is also collaborating with George Amato, of the New York Zoological Society/Wildlife Conservation Society, on the genetics of captive populations of endangered species.

Other work in Dr. DeSalle's laboratory seeks to understand the systematics and development of fruit flies in the genus Drosophila. A focus of this work is the developmental mechanisms of evolutionarily important characters.

Dr. Grimaldi works on the systematics of flies and other small organisms preserved in fossilized tree resin, or amber. His research focuses on extinctions in the Caribbean, as documented in Dominican amber, and the radiations of modern groups of insects in the Cretaceous (135 to 65 million years ago), such as are preserved in amber from New Jersey and Lebanon. So far, nearly 200 inclusions of insects and other small organisms have been found in recent collections of 90-million-year-old amber from New Jersey. This research has even revealed a semi-plume feather—the oldest terrestrial record of a bird from North America. The detail of preservation in amber is legendary, but a comprehensive study done
at the Museum with electron microscopy revealed an even finer degree of preservation than had been thought to exist. Cells from plant leaves and insect muscles, even spores of symbiotic fungus in beetles, were all preserved with striking fidelity in Dominican amber that is 25 to 30 million years old. Despite such virtues, a major caveat of amber fossils is that convincing forgeries are easily made. Dr. Grimaldi, in collaboration with Alexander Shedrinsky and Norbert S. Baer (New York University Institute of Fine Arts Conservation Laboratory) and Andrew Ross (British Museum), completed a comprehensive paper on the identification, history, and case studies of amber-fossil forgeries. Several major forgeries were discovered, including pieces from important museums.

James S. Miller, curatorial fellow, focused his research efforts on the immature stages and host plants of the dioprine moths, a group of 400 brightly colored day-flying species found in Central and South America. Many are extremely rare, but Dr. Miller and his colleagues discovered the life histories of more than thirty species during recent fieldwork in Panama, Ecuador, and French Guiana. Dr. Miller is currently writing a paper summarizing character evolution of adult and immature stages in one dioprine tribe, the Josiini (with 100 species). Andrew Brower, NSF postdoctoral fellow, initiated a three-year study of the molecular phylogeny of the large, complex butterfly family Nymphalidae. He is also studying the molecular genetics of wing-pattern formation in *Heliconius* butterflies, famous for their mimicry assemblages. Dr. Brower has completed five manuscripts on *Heliconius* systematics and evolution during his year at the Museum.

Curator Emeritus Frederick H. Rindge continues his study of the Chilean species of the large, worldwide genus of geometrid moths, *Eupithecia*. Dr. Rindge has described more than half of the sixty-one species now known. This work is part of the Department’s ongoing survey of the arthropods of southern South America.
the Department of Herpetology and Ichthyology's collection of preserved fishes, amphibians, and reptiles includes specimens from all over the world and consequently serves an international community of scholars. As with a lending research library, specimens are acquired, catalogued, and often sent out on loan. Fieldwork by Museum staff continues to be an important source of new material for the collection.

With support from Chairman Emeritus Robert G. Goelet, Curator and Chairman Charles W. Myers continued organizing interdisciplinary collecting expeditions to the South American tepuis (table mountains). Such work in Venezuela is coordinated by the Caracas-based Fundación Terramar in collaboration with the Instituto Nacional de Parques (Venezuelan National Park Service). The Robert G. Goelet American Museum of Natural History-Terramar Expedition, of 1994, focused on Auyantepui, an immense table mountain with a summit area larger than Caracas. Best known for Angel Falls—said to be the world’s highest waterfall—Auyantepui was first explored by a joint American Museum of Natural History-Venezuelan expedition shortly after its discovery in the 1930s. The 1994 expedition, which in addition to herpetologists included entomologists, mammalogists, and ornithologists, spent the month of February making collections at five helicopter-supported camps, from the forested head of Angel Falls on the eastern edge of Auyantepui to the high rock plains on the west. Consequently, the highland herpetofauna and avifauna of Auyantepui are now among the best known of those of all the tepuis (see also the report of the Department of Ornithology).

Dr. Myers and colleagues also carried out fieldwork to determine the affinities of the amphibian and reptile fauna of Serra Tepequém, a small, isolated tepui in northern Brazil. This trip was conducted under the auspices of the Brazilian Instituto Nacional de Pesquisas da Amazônia.

Curator Gareth Nelson conducted fieldwork to obtain skeletal specimens of Australian fishes. With support from the University of Melbourne, Dr. Nelson and Pauline Y. Ladiges (School of Botany, University of Melbourne) extended their computer programs for three-item analysis to incorporate molecular sequence data, and developed a program for the analysis of biogeographic data.

Curator Charles J. Cole and Associate Carol R. Townsend spent February and March in Guayana, as participants in the Smithsonian Institution’s program on the Biological Diversity of the Guianas. Dr. Cole and Ms. Townsend also carried out fieldwork at the Southwestern Research Station as part of collaborative research with Research Associate Herbert C. Dessauer on hybridization in teiid lizards (Cnemidophorus tigris).

Associate Curator Melanie L. J. Stiassny continued her study of the fish fauna of Madagascar. With financial sup-
port from Herbert Axelrod, she maintained her collecting efforts on Madagascar's Grande Île and is currently working on the descriptions of new clupeid, bedotiid, and cichlid species collected there.

Curator Emeritus C. Lavett Smith continued work on the behavioral ecology of the flagfin blenny, Emblemaria pandionis. Dr. Smith retired on August 1, 1993, after thirty-one years at the Museum, which included service as departmental chairman. He plans a continued program of active research in the Department and was appointed curator emeritus in recognition of his distinguished and ongoing service to the Museum. Dr. Smith also received a Distinguished Service Award from the American Fisheries Society.

Assistant Curator Darrel R. Frost continued collaborative work on revisionary studies of oplurid and tropidurid iguanian lizards, and completed a manuscript with Arnold Kluge (University of Michigan) on aspects of the philosophy of systematics. Dr. Frost is also working on an update of Amphibian Species of the World, a book published under his combined editorship and authorship in 1985.

Michael W. Klemens, director of the Turtle Conservation Program, continued field projects in Burma and initiated new ones in Egypt, Thailand, and Ecuador. In June, he and Dr. Stiassny participated in a faunal inventory of Tarangire National Park, Tanzania.

A major monograph on the pattern of cranial nerves of the coelacanth (Latimeria) was published by R. Glenn Norcutt (Scripps Institution of Oceanography) and Research Associate William E. Bemis. Their study was based on one of five embryos from a large female coelacanth in the Museum's collection.

The Department receives significant support from the National Science Foundation: Dr. Stiassny received a grant that supported attendance of American and African participants at an international symposium on African freshwater and brackish water fishes in Dakar, Senegal. Dr. Frost continued, with co–principal investigator Tom Titus (University of Oregon), into the second year of a five-year NSF research grant to study molecular and morphological evolution within the Iguania. Second-year funding was received for Dr. Myers's three-year grant for computerizing the herpetology collection database.

A rare lizard, Tropidurus bogerti, which occurs only in the “Lost World” of Auyantepui, Venezuela. This reptile was discovered in 1937 by the Museum’s first expedition to Auyantepui and was named in honor of Charles M. Bogert (1908–1992), who was a curator of herpetology at the Museum. This photograph was taken on the Museum’s second expedition to Auyantepui, in 1994.
Invertebrates comprise a diverse group of animals, the study of which is particularly challenging when both extinct and extant forms are included. Indeed, the recognition that the history of life is a continuum and that past events help explain present patterns is what allows us to understand the complexity of the world around us. The efforts of the Department of Invertebrates, both in field programs and in laboratory research, are focused on sampling the complexity of invertebrate life, ranging from marine arthropods living in ancient oceans 400 million years ago to marine snails living off the coast of California today. These efforts are designed to establish the ecology and life history of these animals and the phylogenetic relationships among them. Supported by extensive collections dating back to the establishment of the Museum and still growing rapidly today, the Department aims to enrich our understanding of the diversity of life on Earth, both in the distant past and in our own time.

Neil H. Landman, chairman and curator, continues to focus his research on externally shelled cephalopods. He has investigated the embryonic development of fossil ammonoids, searching for new characters to use in establishing a phylogeny of these animals. With City University of New York doctoral student and Senior Museum Technician Susan Klofak, Dr. Landman studied the early ontogenetic development of some of the most primitive ammonoids, dating from more than 400 million years ago. Fortunately, because ammonoids retain a record of their growth in their shell, the embryonic portion of development is preserved even in adults. Dr. Landman is also coediting a book with Kasushige Tanabe (University of Tokyo) and Richard Davis (College of Mt. St. Joseph) on ammonoid paleobiology. This book emphasizes the ecology, life history, and phylogeny of these animals. With David Jacobs, research fellow, Dr. Landman continued his investigation of the functional morphology of ammonoids and how this relates to their biogeographic distribution in ancient seas. Finally, on a more modern front, with Charles Wray, a Yale University doctoral student and scientist in the Museum's Molecular Systematics Laboratory, Dr. Landman has completed a study of DNA sequence data from present-day Nautilus species. These data are useful in constructing a phylogeny of these animals, which represent the last externally shelled cephalopods in the world today.

Niles Eldredge, curator, completed two book manuscripts during 1993–1994. The first, The High Table, recounts controversies in evolutionary biology that have taken place since 1959, the centennial anniversary of the publication of Charles Darwin's On The Origin of Species. The second book, Dominion, evaluates the ecological side of human evolutionary history in an attempt to specify humanity's current—and future—position in the natural world. With Bruce Lieberman, a postdoctoral colleague in the Department, and Carlton Brett (University of Rochester), Dr. Eldredge also continued a National Science Foundation-sponsored project to evaluate patterns of evolutionary stasis and change in 300 species of invertebrates found as fossils in the Middle Devonian Hamilton Group. For some 6 to 8 million years beginning approximately 385 million years ago, the species and ecological communities of the Middle Devonian of eastern North America remained remarkably stable, showing very little evolutionary change. Finally, Dr. Eldredge has been engaged with others from the Museum in planning a new hall devoted to biodiversity.
William K. Emerson, curator, progressed in his long-term investigation of the evolutionary history of the shallow-water mollusks occurring in the tropical eastern Pacific Ocean. The present study involves the molluscan marine faunas of the oceanic islands: Clipperton Island, the Revillagigedo Islands, Cocos Island, and the Galápagos Islands. Faunal lists, based on Museum records and the literature, were completed for Clipperton Island and the Revillagigedo Islands. The composition of these insular faunas reflects the geographic location of these outposts within the major oceanic current systems that serve as pathways for dispersal in the eastern Pacific Ocean. The role of present and past El Niño episodes is presently being investigated to determine the influence of these climatic events on species diversity.

Ward Wheeler, associate curator, further pursued his studies in molecular systematics. With colleagues in the Molecular Systematics Laboratory, he completed two studies, one on the phylogenetic relationships of molecular development of the Strepsiptera (the twisted-wing insects), another on the arctoid Carnivora.

The newest addition to the Department, Alan Harvey, assistant curator, joined us in June 1994. Dr. Harvey
arrived at the Museum following postdoctoral fellowships at the Shannon Point Marine Center, the Smithsonian Marine Station at Link Port, and the California Academy of Sciences, and a one-year teaching position at Swarthmore College. Dr. Harvey is a specialist on the systematics and larval ecology of hermit crabs and their allies. He plans to do extensive field research, especially focusing on the shallow-water fauna of the tropical Indo-Pacific Ocean.

This year marked the completion of half a century of active service and research at the Museum by Norman D. Newell, curator emeritus. He and Research Associate Donald W. Boyd (University of Wyoming) continued their studies of the Paleozoic–Mesozoic boundary, long a subject of international debate, with an indication of a significant breakthrough. Their work on extinctions of fossil bivalves shows close correspondence with fluctuations in global biomass, as indicated by stable carbon isotopes. Hence, a natural boundary may be easily identified. In recognition of the significant past and current contributions of Dr. Newell to the fields of invertebrate paleontology and historical geology in general, the Department established an endowed fund in his honor this year. The income from this fund will be used to support research in invertebrate paleontology.

Roger Batten, curator emeritus, completed his study on the Upper Paleozoic snails of the Magdalena fauna from the Hueco Mountains of West Texas. These snails are beautifully preserved and are particularly interesting to paleontologists because they mark the first occurrence in the fossil record of marine and nonmarine snails preserved at the same site.

Studies by a number of research associates are broadening and strengthening the Department’s activities. Leslie F. Marcus participated in several International Morphometrics Workshops this past year. He is also collaborating with curators in a number of different departments in the Museum on geographical distribution theory, ecophenotypy, and identification of sharks. John Tietjen continued his studies on the ecology and distribution of deep-sea nematodes, with a particular emphasis on the nematodes of the southwestern Pacific Ocean. Howard R. Feldman completed a monograph on the Devonian brachiopods of the Onondaga Formation in western New York State. He is also examining the systematics and biogeography of the Ethiopian Province brachiopods from the Middle East. John J. Lee continued his studies of endosymbiotic algae of larger Foraminifera. In particular, comparative studies of the DNA of the dinoflagellate endosymbionts of two soritid Foraminifera by Drs. Lee and Wray led to the conclusion that these two foraminiferan species may have independently acquired their symbionts from other hosts. Drs. Wray and Lee and other collaborators also completed a comparative molecular study of the DNA of Ammonia, a foraminiferan, suggesting that the Foraminifera belong within the avellaneous cluster of Protozoa along with ciliates and dinozoa.

Of special note, one of our research associates, Stephen Jay Gould, professor of geology at Harvard University, became the first occupant of the Frederick P. Rose Chair in the Department of Invertebrates. Mr. Rose established this chair in recognition of Dr. Gould’s outstanding contributions to paleontology and evolutionary biology in general.

This past year has been an active one for the collections of the Department of Invertebrates. Over 17,000 specimens from seventy-seven donors were added to
the mollusk, Recent nonmollusk, and fossil invertebrate collections. Included were specimens collected by Department personnel, principally Walter E. Sage III, senior scientific assistant, and Christopher Boyko, scientific assistant, from such east coast localities as New York, Florida, and St. Catherines Island, Georgia. The last is the site of an ongoing project to document the invertebrate faunal diversity on the island through a grant from the St. Catherines Foundation.

During this past year, Messrs. Boyko and Sage also began a comprehensive catalog series of all the Recent invertebrate-type specimens in the Department's collections. These catalogs will include certain types that will be depicted for the first time. In addition, they have begun research at the Suffolk County Vanderbilt Museum, Centerport, New York, in an attempt to locate all the extant invertebrate-type specimens housed there.
Mammalogy

Much of the research of the Department of Mammalogy focuses on questions of how different groups of mammals are related to one another phylogenetically, how they are distributed across the planet, and how their diversity has been critically affected by humans now and in the recent past.

The international scope of the Department’s work was highly visible this year; the mammalian faunas of Madagascar, South America, Indonesia, and the West Indies were all featured in several completed investigations. Also much in evidence was one of the Department’s crucial efforts—broad comparative and systematic studies of large groups of mammals—as curators and research associates completed a number of papers on the relationships of bats, primates, and rodents.

Curator and Department Chairman Ross D. E. MacPhee completed successful field trips this year to Cuba, Puerto Rico, Jamaica, and China. In Cuba, he and his colleague Manuel Iturralde-Vinent (Museo Nacional de Historia Natural, Havana) again collected at Domo de Zaza, the most significant Tertiary land-mammal site in the West Indies. This time they recovered fossils attributable to rodents and primates—the oldest Antillean records for both groups—in deposits dated to 17–18 million years ago. In southwestern Puerto Rico, with Dr. Iturralde-Vinent and Scientific Assistant Clare Flemming, Dr. MacPhee recovered a sloth that may be as much as 30 million years old. In Jamaica, in collaboration with Donald A. McFarlane (Claremont McKenna College), Dr. MacPhee found new remains of another West Indian primate, Xenothrix megaceros, that lived on this island only a few thousand years ago. Finding fossils of this extinct Jamaican monkey is almost a tradition in the Department of Mammalogy: former Chairman Harold E. Anthony found the first fossils in 1920, and Curator Emeritus Karl F. Koopman described this species with herpetologist Ernest Williams (Harvard University) in 1952.

In China, Dr. MacPhee worked with Chris Beard, of the Carnegie Museum of Natural History, Pittsburgh, and with colleagues from the Institute of Vertebrate Paleontology and Paleoanthropology, Beijing, studying early anthropoids discovered at a quarry in southern Jiangsu province.

Dr. MacPhee produced a monograph on Plesiorostratanus, an unusual mammal from late Quaternary localities in Madagascar. Previously thought to be an aardvark, Plesiorostratanus now appears to have little relation to tubulidentates. Dr. MacPhee referred it to a new order, Bibymalagasia (adapted from Malagasy, and meaning “Animal of Madagascar”), with uncertain relationships to other eutherian mammals. Plesiorostratanus probably died out about 1,000 years ago, during a major extinction event that may have been caused by human beings.

Estimating mammalian diversity in the tropics has always been important to studies of ecology and zoogeography. During the last few years, such estimates have become an increasingly significant part of efforts to preserve indigenous and endemic faunas. Species of rodents are a significant component of such faunas in tropical Asia, particularly through the broad band from Indochina across the Moluccas and Lesser Sunda Islands to New Guinea and northeastern Australia. Determining limits of rodent species, their geographic ranges, their ecological attributes, and ultimately their evolutionary relationships—and understanding all of this in a biogeographic context—has occupied much of the past and recent research efforts of Archbold Curator Guy G. Musser.
During this last year Dr. Musser, assisted by Scientific Assistant Eric M. Brothers, finished a study of bandicoot rats that illustrates the problems associated with accurately determining species richness in any one region. Bandicoot rats are large, terrestrial murids found only in the Indomalayan region. One species, Bandicota bengalensis, is commensal with humans and is a significant pest, threatening food supplies in India and Bangladesh. Another species, B. indica, is an occasional source of food for some tribes. Although a large literature reporting pest biology and control methods covers B. bengalensis and B. indica, we are still ignorant about the actual number of species of bandicoot rats, their morphological and geographic limits, and their phylogenetic relationships. Most workers recognize three species in the Indomalayan region (the two previously mentioned and B. savilei), but five were recently reported from Thailand. Dr. Musser and Mr. Brothers discovered that three out of those five species were based on immature specimens that had been misidentified and that in fact all relevant material for them could be sorted into just two kinds of rats, B. indica and B. savilei, the only two species of bandicoot rats previously reported from Thailand.

Dr. Musser also continued his work on several projects elucidating the rodent diversity on the Sunda Shelf, in Nusa Tenggara (Lesser Sunda Islands) and Sulawesi. Most of these projects will consist of the descriptions of new species. Those from Nusa Tenggara are likely extinct and known only by subfossil material; the species on Sulawesi are part of an intact, living fauna represented by samples collected by Dr. Musser on the Archbold Sulawesi Expedition.

Associate Curator Robert S. Voss and Assistant Curator Nancy B. Simmons received funding from the National Geographic Society for the third expedition by the Department of Mammalogy to French Guiana. In addition to Dr. Voss, the field crew consisted of Scientific Assistant Darrin P. Lunde, undergraduate research intern Roland W. Kays (Cornell University; funded by the National Science Foundation), and volunteer Suzanne Smith (Humboldt State University). The year’s expedition continued a long-term program of inventorying mammalian fauna at Paracou, a research station in primary lowland rainforest. Initiated in 1990 as a joint effort by the Muséum National d’Histoire Naturelle (Paris) and the American Museum of Natural History, the project has now recorded 131 species of mammals, 69 of which are bats—the most diverse fauna yet documented at a single locality in South America and the largest
In two separate issues of American Museum Novitates, Dr. Voss continued his revisionary studies of the diverse Neotropical muroid rodent subfamily Sigmodontinae. His revision of Delomys is the first study to document the distribution and ecology of species in a mammalian genus endemic to the threatened Atlantic rainforest biome of southeastern Brazil. A companion paper, cowritten with Research Associate Michael D. Carleton, names a new genus (Lundomys) based on fossil and Recent specimens and critically reviews the phylogenetic status of the tribe Oryzomyini, to which it is assigned.

In collaboration with Dr. Louise H. Emmons, an authority on rainforest mammal ecology at the Smithsonian Institution, Dr. Voss is working on a monographic assessment of mammalian diversity in Neotropical lowland rainforests. By comparing observations of species richness derived from inventories at numerous rainforest localities in Central and South America with expectations based on geographic range data, Drs. Voss and Emmons will evaluate sampling biases of standard field methods, analyze ecological and geographic correlates of site-to-site variation in rainforest mammal diversity, and provide a baseline for future research and conservation projects.

Dr. Simmons spent most of the past year continuing her research into the evolution of bats. Together with Michael J. Novacek, vice president and dean of science and curator in the Department of Vertebrate Paleontology, Dr. Simmons has received a National Science Foundation grant to investigate relationships of bats using features of the skeleton and muscular system. As part of a study of the structure of chiropteran hind limbs, Dr. Simmons went to Creighton University, Omaha, Nebraska, to work...
with bat expert Thomas Quinn on an unusual tendon-locking mechanism found in the feet of bats. They discovered that this mechanism, which had previously been seen only in bats, is also present in colugos, the “gliding lemurs” of Southeast Asia. The tendon lock apparently helps both bats and colugos hang by their feet without expending muscular energy.

This year Dr. Simmons finished a several-year study of the origin of bats and powered flight. On reviewing both molecular and morphological information, Dr. Simmons concluded that bats evolved only once and that the common ancestor of living bats was a flying mammal. Contrary to recent reports, Old World fruit bats are not “flying primates.” She also completed a study of the peculiar nipples found in the groin region of some bats. These structures, which apparently act mostly as “holdfasts” for the young, may yield clues to the evolutionary relationships of the living families of bats.

Andrea Peffley joined the staff as a research assistant in September 1993. She has been working with Dr. Simmons on a study of face structure in New World leaf-nosed bats. Using these data together with information from other parts of the bat, Ms. Peffley and Dr. Simmons have constructed a new family tree for the leaf-nosed bats. Kathleen Gobush, a student from Barnard College, worked with Ms. Peffley to document variation in patterns of vertebral fusion in the spine of bats, information that will be useful in future studies of bat relationships.

For a study of New World primate phylogeny, Kalbfleisch Fellow Todd C. Rae collected cranial data from both living and extinct members of the infraorder. In early 1994 Dr. Rae participated in a field expedition to the Pinturas Formation, collecting fossil marsupial specimens from early Miocene primate localities in Patagonia under the direction of John Fleagle, professor of anatomical sciences at the State University of New York at Stony Brook.

Curators Emeriti Koopman, Sydney Anderson, and Ethel Tobach continued their highly productive activities, producing papers on mammalian biogeography, bat systematics, and comparative psychology.

Richard G. Van Gelder (1928–1994)

Richard G. Van Gelder joined the scientific staff of the Museum in 1956 and retired in 1986. His death from leukemia on February 23, 1994, ended a career that contributed much to both scientific and popular knowledge of mammals. As chairman of the Department of Mammalogy from 1958 to 1974, he recruited a new generation of curators, including Sydney Anderson, Karl F. Koopman, and Guy G. Musser, to succeed such curators as Harold E. Anthony, T. Donald Carter, George G. Goodwin, and George H. H. Tate. Dick lived to see his generation retire and scientists such as Ross D. E. MacPhee, Nancy B. Simmons, and Robert S. Voss join Dr. Musser. He was active in the American Society of Mammalogists for many years, serving as its president from 1968 to 1970.

Dick grew up in New York City and was a denizen of the Museum from the age of seven. He went west for college and graduate training and briefly worked at the University of Kansas before returning to New York in 1956. Dick raised funds for and participated in the enlargement of the collections of the Museum and improvements in their storage and management. Expeditions in Africa, South America, North America, and Indonesia were conducted under his administration. In addition to his own significant contributions to the scientific literature of mammalogy, he had the misfortune of entering the medical literature as one of the first cases of chloroquin-resistant malaria to be known from Africa, contracted on one of his expeditions there. Dick’s smile and outstretched hand greeted many a visitor to the Museum and many a student arriving at society meetings over the years. The Department of Mammalogy and the Museum at large mourn his death.

Sydney Anderson
Researchers in the Department of Mineral Sciences study the evolution of the solid earth and the solar system. They investigate a diverse group of problems, such as how magmas crystallize, the nature of volcanic gases and their effect on the atmosphere, the conditions in the deep earth, the fundamental properties of rocks and minerals, and the nature of the early solar system. The Department's research on these problems is funded largely by federal grants from the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), and the Department of Energy (DOE). In this last fiscal year three new NSF research grants were awarded to staffpeople in the Department.

Chairman and Associate Curator Edmond A. Mathez is currently researching the origin of platinum group element deposits in the geochemical evolution of large layered mafic intrusions. Using the trace-element contents of individual minerals obtained with the ion microprobe at the Woods Hole Oceanographic Institute, Dr. Mathez has shown that the platinum-rich rocks of the Bushveld Complex, South Africa, which crystallized from huge magma chambers in the shallow crust, were formed in part by the reaction of fluid with the partially molten rock through which it flowed. The geochemical changes imposed on rocks by percolating fluids are fundamental to the evolution of crustal and mantle rocks. The Bushveld rocks, particularly the drill core in the Museum collection, are proving highly useful for studying the general aspects of this process. Dr. Mathez is now joined in this research by Rosamond J. Kinzler, a new research fellow in the Department, and by Robert H. Hunter, a petrologist at the University of Liver-pool who spent a month studying at the Museum.

Dr. Mathez continued his research on how carbon in rocks influences their electrical conductivity. Because electrical conductivity is one of several geophysical properties examined in the study of deep earth, knowing what controls it is critical to the interpretation of geophysical data. By mapping the distribution of carbon in some deep crustal rocks from Alaska, Dr. Mathez and his colleagues have for the first time been able to associate specific features of the rocks with anomalous electrical conductivities.

Curator George E. Harlow is studying the crystal chemistry of pyroxene and amphibole formed deep in the Earth's mantle. This research, carried out in part in the laboratory of David Walker, at Lamont-Doherty Earth Observatory of Columbia University, aims to determine how pressure enables these minerals to accept elements that are not found in samples formed at low pressure. Dr. Harlow found that certain pyroxenes accept more than 4 percent potassium at conditions equivalent to 450 km depth in the Earth. He also determined how potassium distributes itself among pyroxene, carbonate, and silicate melt. These data indicate that the potassium-rich pyroxenes found in diamonds must have formed in an environment much richer in potassium than has been thought possible in Earth's mantle.

Curator Martin Prinz studied a unique new meteorite sample from Antarctica. The sample, a member of a group of about forty meteorites called ureilites, differs from all previously known members of this group in that it contains abundant chromite and graphite. Previously unknown chromite-carbon reactions resulted in the production of the minerals brezinaite (a chromium sulfide), eskolaite (a chromium oxide), and an unnamed iron chromium carbide. Dr. Prinz's research indicates that the meteorite, in contrast to other ureilites, originated deep in a planetary body and thus
Chairman and Associate Curator Edmond A. Mathez and Assistant Curator James Webster reviewing maps of the Bushveld Complex, in South Africa, where Dr. Mathez conducts research into the origin of platinum-group deposits.

was probably ejected from its parent body by a large impact. It is a stark reminder that our present sampling of the solar system is far from complete.

Assistant Curator James Webster is conducting experiments designed to understand the behavior of chlorine in granitic magmas, lavas, and volcanic gases. The data bear on how certain mineral deposits were formed when hot, chlorine-rich fluids were released from granite magmas. The release of chlorine from magmas that feed volcanoes is also fundamentally important for atmospheric chemistry, as some chlorine compounds are greenhouse gases and cause stratospheric ozone depletion and acid rain.

With researchers of the United States Geological Survey, Dr. Webster is studying thin beds of highly weathered tuffs in coal-bearing strata of the Appalachian Basin in the southeastern United States. This research aims to determine the composition of the original magmas by analyzing small samples of volcanic glass trapped and sealed in microscopic quartz grains that formed during eruption of the tuff. The resulting data allow correlation of coal layers in faulted geologic terrains.

In research that is pertinent to the origins of our solar system and that of certain nitrogen-rich stars, Research Scientist Robert Fogel is studying the behavior of volcanic systems under oxygen-deficient conditions. In normal silicate melts, such as those found on Earth, oxygen bonds with silicon. Dr. Fogel has found, however, that in oxygen-poor environments nitrogen replaces oxygen in
the silicate-melt framework, a result that challenges previous notions of the fundamental structure of silicate melts. The research bears on the evolution of the Earth, which is thought to be made in part of meteorites containing nitrogen-rich minerals.

Dr. Fogel also studied 3.4 billion-year-old colored glass spheres found in rocks and soils brought back from the moon. The glasses were formed by lunar “fire-fountains” similar to the spectacular displays of lava hurled into the air during Hawaiian volcanic eruptions. Using vibrational spectroscopy, Dr. Fogel examined Apollo 15 green and yellow glasses and concluded that the lunar fire-fountains were driven by carbon-rich gases formed by the breakdown of graphite.

Curatorial Fellow Albert Léger is working toward an understanding of how sediment is transformed into rock and how earthquakes are initiated and propagated. In collaboration with Dr. Chris Scholz, of Lamont-Doherty Earth Observatory (in whose laboratory the experiments are being conducted), Dr. Léger is investigating the chemical processes occurring in rocks subjected to high stress at pressures corresponding to depths of 2 to 5 kilometers. Dr. Léger has also teamed up with Dr. Webster to study the origin of the magnetite bodies of the Black Rock Forest, New York. This study is funded by the Black Rock Forest Consortium.

Research Fellow Michael K. Weisberg continued his research on chondrules in meteorites. Chondrules—small spherical bodies present in a large group of meteorites called the ordinary chondrites—contain information on the earliest history of the solar system. Dr. Weisberg is studying a new type of chondrule, which, unlike others, has not been completely melted and may therefore provide information on the early history of the solar system. By invitation of the National Institute of Polar Research, Tokyo, Dr. Weisberg gave a keynote lecture on his work on chondrites.

Dr. Kinzler, an experimental petrologist, joined the Department as the Kalbfleisch Fellow in October 1993. In addition to her work with Dr. Mathez, discussed previously, Dr. Kinzler is working on the problem of how basaltic lavas are formed in the mantle.

Senior Scientific Assistant Joseph Peters was selected as the 1994 Honorary Award Winner for the Eastern Federation of Mineralogical and Lapidary Societies. The Department’s first two Columbia graduate students completed their degrees this year. Cheryl Peach received her Ph.D. for experimental research on platinum group element geochemistry. Dr. Peach is continuing her research and working to develop earth-science education programs in the Department. Robert Hutchinson received an M.S. degree for his original research on the Bushveld Complex, which included underground mapping in one of the platinum mines. Both students worked under the supervision of Dr. Mathez.

The Mineral and Gem collection grew by a total of 1,506 objects, most of them donations. Helen Stillman donated 119 pieces of jewelry; Arthur Court donated specimens of azurite/malachite and tourmaline; Bill Kasso donated several important opal pieces; Paula Stone donated a free-form precious opal; M. Stanley Kron, M.D., donated important specimens of stibnite and cinnabar from China; Dennis Mensch donated six crystallized minerals, including one of the finest crystallized malachites ever found in Zaire; Adrienne Charleman donated a collection of ten crystallized minerals; Lawrence H. Conklin donated a tourmaline slice from
Arrussuahy, Minas Gerais, Brazil; and Irene Feldman donated a collection of objects used by professional geologists and prospectors. The collection of minerals from Russia, Ukraine, and Kazakhstan was dramatically improved with purchases made at the Denver and Tucson Gem and Mineral shows.

The ore-depositz collections grew by acquisition of drill core from two lithium pegmatite mines near Charlotte, North Carolina, and from the massive sulfide deposits of the historic mining district at Ducktown, Tennessee. The E. S. Sampson Economic Geology Collection of approximately 4,000 ore specimens was donated by Princeton University.

Eight specimens were added to the meteorite collection as a result of exchanges, donations, and purchases. One of the more important additions is a 4.6 kg slice of a rare, new type of iron meteorite with silicate inclusions, named Miles, from Queensland, Australia. This meteorite probably contains the record of the earliest history of the planets. Another significant addition is the Mbale meteorite, which fell on a village in Uganda in 1992.

A specimen of native gold on quartz from California, part of an exhibit in the Museum’s Guggenheim Hall of Minerals. Researchers in the Museum’s Department of Mineral Sciences study the processes that create precious metals such as gold and platinum.
Members of the Department of Ornithology are increasingly engaged in molecular studies of the systematics of birds of the world. Two of the Department’s four curators, as well as most of the postdoctoral fellows and graduate students, are involved in DNA studies. A major project that will facilitate this work has begun with funding assistance from the Lewis B. and Dorothy Cullman Foundation, Inc., and the National Science Foundation: the refurbishment of the sixth floor of the Department’s Whitney Building will create a new molecular laboratory, offices, and classrooms, alleviating crowding in the present molecular laboratory and allowing expansion of the Department’s molecular research and other activities.

Department Chairman George F. Barrowclough, with Scientific Assistant Paul Sweet, took part in the winter 1994 expedition to Auyantepui, in Venezuela. The joint expedition between the American Museum of Natural History and the Fundación Terramar, of Venezuela, inventoried the biodiversity of this isolated mile-high plateau, from which Angel Falls cascades. In addition to ornithologists, other specialists on the expedition included mammalogists, herpetologists, and entomologists. This was the first major ornithological study of the tepui, or table mountain, since the initial survey in the 1930s; a number of species that are new to the locality were found. Among the salient results of the expedition were the addition of several new species to the avifauna of Auyantepui, as well as major additions to the Department’s skeletal, anatomical, and molecular-tissue collections.

With Research Associate Jeffrey Groth, Dr. Barrowclough continued his study of DNA sequences from endangered Spotted Owls. The objectives of this work are to describe patterns of genetic differentiation among populations and subspecies of the owl and to try to infer levels of gene flow among fragmented and isolated populations.

Curator Joel Cracraft continued his studies of the birds-of-paradise and their relatives, assisted by postdoctoral fellows Shannon Hackett and Gary Nunn and by Alejandro Espinosa, an American Museum of Natural History–City University of New York graduate student. This work, which combines molecular and morphological data, is attempting to unravel the interrelationships of these birds in order to provide a foundation for describing their pattern of diversification. In addition, knowledge about their relationships and biogeography will help decipher the history of the Australasian avifauna, of which this group of birds is a major component.

Dr. Cracraft has also devoted much of his time to working directly on other biodiversity issues, including his activities with the Museum’s Center for Biodiversity and Conservation, where he has been acting director, and with Systematics Agenda 2000, an initiative of three professional systematics societies. He is also part of a team working to develop a new biodiversity hall at the Museum.

Lamont Curator Lester L. Short continued research on woodpeckerlike birds with Jennifer M. Horne, research fellow of the National Museums of Kenya. They progressed with the writing of their book, *Toucans, Barbets and Honeyguides*, for which they conducted comparative studies of critical specimens at several North American museums. Fieldwork on the natural history of hon-
eyguides continued out of a permanent camp in central Kenya. The total number of honeyguides that have been color-banded now exceeds 1,250; the histories of some of them are known for up to eight years. These little-known birds will also be the subject of a book.

Curator François Vuilleumier, accompanied by Senior Scientific Assistant Allison V. Andors, carried out fieldwork in southern Patagonia, Argentina, from October through December 1993. This work continues Dr. Vuilleumier’s long-term project on speciation and biogeography in steppe birds of this region. Two major transects from the Atlantic coast to the Andes in Santa Cruz province were examined in the desertlike Patagonian steppe vegetation, where bird populations were found to be much lower compared to those in the denser vegetation of northern Patagonia. Overgrazing and other human activities in Santa Cruz may have altered the vegetation sufficiently to have resulted in substantial modifications of avian distributions, a problem that is currently being investigated. During the same expedition, fresh information on distribution and niche occupation of birds in southern beech (Nothofagus) forests was gathered in Argentine Tierra del Fuego. These data will be used in a forthcoming comparative paper on birds living in all regions of the Southern Hemisphere where southern beeches form extensive forests.

Studies of Central and South American birds have been a primary focus of the Department of Ornithology for many years. During this past year, in addition to the expeditions to Venezuela and Patagonia discussed above, three Chapman Fellows joined the Department to pursue systematic investigations of Neotropical birds; all are using molecular methods. John Bates is describing patterns of population structure in Amazonian birds, especially genetic divergence across major river systems in Brazil; Nedra Klein is investigating Stripe-headed Tanagers in the Greater Antilles, where they are morphologically divergent; Dr. Hackett is working on the phylogenetic relationships of the family Pipridae, a group of birds with well-developed courtship displays. Dr. Nunn, a fourth Chapman postdoctoral fellow, is investigating the phylogenetic relationships of albatrosses and related birds such as shearwaters and petrels.

This rare articulated skeleton of the Great Auk, extinct since 1844, was recently donated to the Museum by Mrs. Samuel K. George, widow of one of the men who discovered it. In 1936, E. Thomas Gilliard, a young employee of the Ornithology Department, and his friend, Samuel K. George, set off for the coast of Newfoundland, the last home of the Great Auk. They pooled their own limited funds—the Museum had no faith in this “boys’ talk”—and hired a local captain to take them through treacherous seas to Funk Island. There they net success and scooped up hundreds of bones. Gilliard, who rose to become a Museum curator, fitted an almost complete skeleton together, and proudly displayed it on his desk. With Gilliard’s death in 1965 the ask passed into the possession of Samuel George. The Department of Ornithology is now pleased to welcome back and provide a permanent home for this specimen steeped in history.
A...his eventful year included the May 1994 opening to the public of two of the six halls to be devoted to the history of the vertebrates. Although this project, the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives, was first conceived many years ago, the last five years were marked by intensive work that has involved everyone in the Department, as well as colleagues on the Fourth-Floor Task Force. The designer for the project is Ralph Appelbaum of Appelbaum and Associates, and the construction contractor is the firm of Lehrer, McGovern, Bovis. The enthusiastic reaction of the public and the press confirms the Department's view that an exhibition organized to demonstrate the major evolutionary events in the history of vertebrates provides a stimulating learning experience at nearly any level of interest and knowledge. Making use of the Museum’s extraordinarily comprehensive collection, these halls are unique in their emphasis on evolutionary relationships rather than on vignettes of life through the ages. As such, they provide insight into the scientific methodology used at the Museum to study evolutionary relationships.

With the fourth-floor renovation project successfully launched, the Department looks forward to the opening, next year, of the two dinosaur halls, on which work is well underway.

Despite the work on the halls, the members of the curatorial staff found time to continue their research work in the office and in the field. The very fruitful collaboration between the Department of Vertebrate Paleontology and the Mongolian Academy of Sciences continues with support from the National Science Foundation (NSF) and other sources. Vice President and Dean of Science and Department Curator Michael J. Novacek, Curator Malcolm McKenna, Associate Curator Mark Norell, postdoctoral fellows Luis Chiappe and James Clark, and Fourth-Floor Task Force Project Director Lowell Dingus participated in the 1993 and 1994 field seasons.
The work emphasized the Cretaceous dinosaur-bearing beds and the Eocene mammal deposits of the southern Gobi Desert, in Mongolia, and the Oligocene and Miocene rocks exposed in the "Valley of Lakes," north of the Altai Mountains, in central Mongolia. Important new finds were made, including the first-known theropod dinosaur embryo, providing evidence as to the parentage of the famous eggs discovered on the Museum's 1920s expedition to the Gobi Desert.

Curator and Chairman Richard Tedford and Research Associate Larry Flynn (Harvard University) continue their work on the Chinese collections in collaboration with their colleagues from the Institute of Vertebrate Paleontology and Paleoanthropology, Beijing. This work focuses on faunal changes leading up to the beginning of global glaciation, in the late Pliocene. Evolution, extinction, and changes in geographic distribution took place as animals and plants adjusted to the growth of the polar ice caps that ushered in the Ice Ages.

Dr. McKenna, working with Demberlyn Dashzeveg of the Mongolian Academy of Sciences and aided by graduate students, is concentrating on the Oligocene deposits of the Valley of Lakes. The valley is one of the few places in central Asia where interbedded lava flows can be dated in direct relationship with fossil mammals. These data and those from stratigraphy will help us understand the nature of the fauna and the changes in it at a time when the Antarctic continent was first glaciated and world climates became drier and more seasonal.

Curator Eugene S. Gaffney has been working with the African record of turtles, especially the ancient forms of the Jurassic and Miocene species, the latter of which constitute a previously unknown group. He conducted fieldwork in Kenya, Zimbabwe, and South Africa with Research Associates Peter Meylan (Eckerd College, Florida) and Roger Wood (Stockton State College, New Jersey).

Curator John Maisey's work on the paleoecology of the fishes from Brazil's Santana Formation has established a hierarchy of predator-prey relationships by noting the stomach contents of the acid-prepared remains of the early Cretaceous fishes. A giant relative of the living bowfin (Amia) appears to have been at the top of the local food chain, eating all other fishes. Other forms down the chain had diets that included plankton and shrimp in addition to fish. Some of these fossils bear phosphatized eggs that can be used to establish the reproductive strategy of some of the fishes, as well as the fishes' age at the time of reproduction, their environment, and seasonal influences on behavior.

In addition to his work on Mongolian dinosaurs, Dr. Norell, who was promoted to associate curator at the end of this year, continues his long collaboration with Research Associate Andre Wyss.
Dr. Clark finished his postdoctoral fellowship and will join the academic staff of George Washington University. In addition to his participation in the Mongolian fieldwork, he joined Ian Tattersall (chairman and curator, Department of Anthropology) in an exploration of Miocene deposits in Vietnam, and he continued his fieldwork in the middle Jurassic mammal-bearing deposits of northern Mexico.

Dr. Chiappe is in the final year of his fellowship, but, with NSF funds, he will continue to study the Maniraptra "birds" from Mongolia with Dr. Norell. Jin Meng joined the staff as a postdoctoral fellow, and with Dr. Wyss, is working on Eocene mammals from their fieldwork in inner Mongolia.
Dr. Wyss again led a field party to the high Andes near Santiago, Chile. This year's “summer” work (January) was rewarded by a large extension of the geographic area covered by Eocene and Oligocene rocks. The party, which included Research Associate John Flynn (Field Museum) and Dr. Meng, also found additional remains of the earliest known rodents in South America.

Research Associate Eric Delson (City University of New York) continued his studies of fossil Macaque monkeys and their relations, in addition to revising two treatises on fossil primates that continue to be widely used reference materials.
Southwestern Research Station

The U.S. Congress passed the Cave Creek Canyon Protection Act of 1993, introduced by Representative Jim Kolbe, of Arizona. The act removed 13,000 acres of the canyon from mineral entry that had been allowed under the 1872 mining laws. It thus ended more than two years of concern by scientists, bird-watchers, naturalists, and residents of this unique canyon of the Chiricahua Mountains, home of the Southwestern Research Station. Station Director Wade C. Sherbrooke played a key role in these efforts, which ensure the long-term protection of the natural environments surrounding the Station for future generations of scientists.

The National Science Foundation (NSF) continued its support of facilities and equipment improvements at the Station with a third grant. Over the next two years the NSF/American Museum of Natural History matching-funds project will result in construction of a modern live-animal holding facility, construction of an addition to the Osborn Memorial Laboratory (built in 1956) to house scientific collections and library materials, and renovation of space above the current office as a winterized computer room and office. This continuing support from the NSF is indicative of the widespread recognition of the significance of the Southwestern Research Station as a field-research institution serving the nation.

Horned-lizard biology, particularly antipredator behaviors, remained a focus of Dr. Sherbrooke’s research. Recently, he has been studying the response of horned lizards to the threat of western diamond-back rattlesnakes. In an invited paper presented at the Second World Congress of Herpetology in Adelaide, Australia, he summarized his work on antipredator behaviors of horned lizards to eight potential predators of diverse prey-capabilities. He has also continued research on the mechanisms of rapid color-change in lizards.

This was the second year of a three-year grant of $100,000 from the Horace W. Goldsmith Foundation in support of work at the Southwestern Research Station. The Margaret T. Morris Foundation and Rupp Industries, Inc., also continued their generous support of the Station’s activities. Other individuals donated to the Southwestern Research Station Student Support Fund. Recipients of awards from the fund this year were Judith Chupasko (Harvard University), for a small-mammal survey along an elevational gradient, and Geoffrey Smith (University of Nebraska), to study individual life-histories of *Sceloporus virgatus*.

Receiving funds from the Theodore Roosevelt Memorial Fund were Allison Abell (University of Chicago), for work on the evolution of display characters in *Sceloporus* lizards; Alistair Cullum (University of California, Irvine), for research on physiological consequences of sexuality in *Cnemidophorus* lizards; Sarah Richardson (University of Arizona), for a study of the ecological impact of nectar-robbing bees on plants and pollinators; and Diane Wagner (Princeton University), for work on species-specific effects of tending ants on the ecology and physiology of the larvae of lycaenid butterflies.

Piotr Jablonski (State University of New York at Albany) received a Chapman Fund award for work at the Station on the prey-startle significance of painted redstart plumage patterns.

In 1993–1994, the Southwestern Research Station hosted 1,436 overnight guests. There were 168 scientists, 301 students in classes, 245 members of conservation workshops, 160 visitors in tour...
groups, and 562 naturalist guests. Researchers gave 32 seminars presenting their work to Station residents and to members of the Portal, Arizona, community. The Station had 40 volunteers this year, all of them outstanding students exploring careers in field biological sciences; some came from as far away as Canada, England, Denmark, and South Africa. Working at the Station allows the volunteers to apprentice with field biologists and to gain hands-on experience, valuable in helping them determine the future directions of their careers.

Great Gull Island

In the last twenty-seven years, 131,394 Common Terns—25,636 adults and 105,758 young—have been banded on Great Gull Island, New York. After their initial banding, 61 percent of the adults and 11.4 percent of the young returned to the Island at least once. Computerizing this large data set was made possible by the substantial and continuing support of the Gordon/Rousmaniere/Roberts Fund from 1989 through 1993, and of the Drumcliff Foundation in 1992 and 1993.

The critical support from these two funds carried the project from the data-entry phase through the data-analysis phase. In October 1993 papers based on computerized data were given by Grace Cormons, Joseph DiCostanzo, and Helen Hays at the Colonial Waterbird Society meeting in Arles, France. Mr. DiCostanzo gave a paper on differential band-loss, comparing aluminum, incoloy, and steel bands. Ms. Cormons gave a poster paper on postbreeding dispersal in Roseate Terns, while Ms. Hays presented one on multiple birds on nests.

Analysis of the data has been facilitated by a grant from the Bernice Barbour Foundation for two computers, a printer, and statistics software. One of these computers was sent to Great Gull Island in May 1994, enabling the direct, on-site entry of data and the use of a mapping program purchased in 1993.

The Great Gull Island Project is also collecting data on the endangered Roseate Tern. Although the breeding range of Roseate Terns in this hemisphere is known, it is not clear where Roseates concentrate in the winter. The project is planning an expedition to Brazil in February-March 1995 to look for Roseates along the coast. A previously reported grant (1992) from the Bernice Barbour Foundation will support this expedition. In 1993 the Norcross Foundation notified the project that it would meet the balance of expenses for the work in Brazil.

More Roseate Tern nests (1,330) were marked in 1993 than in any previous season since 1966 (1,500). Ms. Cormons estimated that 1,400 pairs of Roseates nested this season, making it the largest nesting concentration in the hemisphere this year. The work on Roseates was again supported through a contract with the federal government.

Matthew Male continued his work on Fort Tyler, off the northern tip of Gardiners Island. Working with decoys and tapes, he has attracted Common Terns to Fort Tyler and hopes that in 1994 Roseates will also nest. Mr. Male’s work was supported by a contract from the New York State Endangered Species Unit awarded to the Great Gull Island Project in 1993.

From August 4 through 6, 1993, Genevieve Maxwell, born on Great Gull Island on November 4, 1906, visited her birthplace. Mrs. Maxwell is the only person ever born on the Island, where her father was a gunnery sergeant during the army occupation. She spent thirty-five years in Lebanon, working as a reporter,
until her eightieth-birthday celebration brought her to the attention of the U.S. ambassador, who ordered her home to the United States because he did not want to be responsible for her. She touched down on Great Gull for a visit in 1983 and participated in all Island activities, including a swim.

In July, the Great Gull Island Project's Museum-office volunteers came ashore, giving themselves a chance to see how the data is collected and to meet the perpetrators of many of the puzzles they have deciphered and entered in the office computers. In August, Project Oceanology, an environmental organization working with junior high school students in Connecticut, brought twenty-one teachers to visit the Island.

As the 1983 field season ended on September 26, one young Common Tern, hatched on August 24, was observed sitting on a rock, still being fed by its parents. The Great Gull Island Project hopes to report on its return two years hence.

**St. Catherines Island**

More than two decades ago, the American Museum of Natural History entered into an agreement with The Edward John Noble Foundation to encourage and facilitate archaeological research on St. Catherines Island, off the coast of Georgia. To date, the Noble Foundation has enabled literally hundreds of advanced students and scientists to carry out research on various aspects of the natural and cultural history of the island. The results of these inquiries have been reported in several dozen popular publications, scientific papers, and research monographs.

In 1979–1981 the research team conducted a systematic 20 percent randomized sample of the entire island. They found 140 new archaeological sites and are currently analyzing the results of the more than 1,000 test excavations. David Hurst Thomas, curator, Department of Anthropology, is completing a book reconstructing the prehistoric cultural ecology of this area.

The survey sampling led directly to the discovery of Mission Santa Catalina de Guale, Dr. Thomas's second major research focus on St. Catherines Island. Jesuit missionaries probably first arrived on St. Catherines Island in 1566, when they encountered a number of Guale villages, each of which may have had up to 1,000 inhabitants. The mission period lasted until 1680, when both missionaries and Indians retreated toward St. Augustine because of the growing British presence along the Georgia–South Carolina coast.

Dr. Thomas has been exploring in detail the 200-year period ranging from the century before the Spaniards arrived through their control of the St. Catherines Island empire. He has spent a decade excavating sites relevant to this time of massive cultural change, during which an entire way of life was modified—both religiously and economically—and the aboriginal population was decimated by an influx of European diseases.

This was the second year of a three-year program of analyzing, conserving, and publishing the results of archaeological research on St. Catherines Island. Much of the year was spent analyzing anomalies discovered in the pueblo portion of Mission Santa Catalina de Guale. Of particular interest are the several dozen aboriginal structures that have appeared in the remote sensing results but which are extremely difficult to find using conventional excavation strategies.

This new fieldwork involves approximately a dozen graduate students, at both the M.A. and Ph.D. levels, presently
being selected on a competitive basis from major universities and colleges in the United States. Student research topics include but are not limited to analyzing paleobotanical remains, developing innovative dating techniques (such as thermoluminescence and geomagnetism) for use in contact-period studies, exploring the relevance of palynology to Creek Indian archaeology, analyzing stable-isotope content of human bones recovered in phase IV excavations, studying attrition and stress indicators in recovered human teeth, assessing social status in contact-period villages, assessing the importance of agriculture using paleopathological and macrobotanical analysis, perfecting archaeological indicators of seasonality, analyzing aboriginal community structure through detailed micropalynographic computer mapping of contact-period sites, and conducting archival research on early ethnohistorical documents.

Black Rock Forest

The Black Rock Forest is a 3,750-acre natural area located in the Hudson Highlands on the west bank of the Hudson River, fifty miles north of New York City. A prime example of the natural ecosystem that once covered the region, the Forest borders additional protected lands to the north and south, including Harriman and Bear Mountain state parks. Collectively, these form a natural forested area some 60,000 acres in size. The topography of the Black Rock Forest is varied and dramatic, with a dozen summits reaching over 1,400 feet. It features a wide variety of habitats, ranging from young to mature forests, both deciduous and evergreen, to numerous streams, ponds, and natural wetlands. The faunal life is correspondingly diverse and includes locally rare animals such as black bear, bobcat, coyote, gray and red fox, mink, river otter, and rattlesnake. Many rare plants have also been documented on the property. Originally set aside near the beginning of the twentieth century for research in forest management, the Forest has been administered and used as a field station for the past five years by the Black Rock Forest Consortium, a nonprofit organization comprising private and public educational and research institutions. The members are the American Museum of Natural History, Barnard College, Brooklyn Botanic Garden, City College, Columbia University, Dalton School, Friends Seminary, Lehman College, Newburgh City School District, New York Academy of Sciences, New York University, Storm King School, Teachers College, and the United Nations International School. The mission of the Consortium is to promote scientific research and excellence in education, while carefully managing the ecosystem of the Black Rock Forest.

Some eighty scientific research papers have been produced at Black Rock since 1930, with an increase in activity since the formation of the Consortium. A dozen research studies are in progress at the Forest in disciplines such as forest ecology, biogeochemical cycling, paleoecology, aquatic ecology, and geology. Some studies receive support from a grant program, which awards up to $5,000 for research projects in the Forest. In 1993 James Webster, assistant curator in the Department of Mineral Sciences at the Museum, began a study on the genesis and distribution of chlorine-rich minerals associated with magnetite concentrations in the Forest, building on his previous studies there.

Educational activities at the Forest, involving students at all levels from grade school through graduate school,
RESEARCH STATIONS

have been rising steadily—to more than 4,000 student-visits last year. Black Rock is also a favorite location for field trips by the Ecology Club of the Museum’s Education Department. Field activities have included tree measurement and coring to determine age and growth rates, studies of plant and animal habitats, deer population and behavior studies, and construction of owl and bat nesting boxes.

One of the major objectives of the Black Rock Forest Consortium is to provide linkages between student groups and ongoing scientific studies of the Forest. Last year students from the Ecology Club helped collect pollen samples for New York University researcher Terryanne Maenza, who has been conducting a paleoecological study in the Forest. In turn, she provided the students with an understanding of changes in the composition of the Forest since the retreat of the glaciers 12,000 years ago, based on fossil pollen she collected from lake sediments.

The Consortium is in the process of constructing a readily accessible information network, including both research data and curriculum materials, so that students, teachers, and researchers can maintain contact with the Forest between visits. The first step in the process was the installation in spring 1994 of a Consortium-wide computer mail system, developed jointly by the Dalton School and Teachers College. Plans were developed for the installation of environmental sensors and a rapid telemetric relay network.
As a crucial technological resource, particularly for analytical microscopy—scanning electron microscopy (SEM), energy dispersive spectrometry (EDS), and image analysis—the Interdepartmental Laboratories (IDL) support the activities of the entire Museum. Recently, the IDL have installed information resources that network computers in science and nonscience departments and that are linked to the Internet, the worldwide network of universities, institutions, and corporations that constitutes the "information superhighway." This network supports electronic communications and access to digital information and computational resources.

Analytical Resources

The SEM/EDS laboratory is used extensively by the Museum's scientific departments as well as by scholars from other institutions. The ability of the scanning electron microscope to examine detail below the resolution of light yields critical information for biologists studying morphological variability among the vast collections housed at the Museum. Entomologists, for example, frequently employ scanning technology to examine distinct features of larval stages, considered to be important guides to phylogenetic relationships among insect groups. Other studies focus on foraminifera, fish scales and teeth, fossil shells, and dinosaur skin and teeth. Moreover, in anthropology, SEM has proved invaluable for identifying pigments from archaeological and ethnographic materials and soon will be employed to analyze airborne particulates in conservation environments.

Analytical technologies such as EDS and image analysis are important for determining the elemental composition of materials. Mineral scientists combine backscattered electron imaging with EDS analysis to identify mineral phases in meteorites, in metamorphic rocks, and in experimental magma melt and diagenetic (rock-forming) geochemical experiments. Digital imaging is being used in systematics research—particularly by entomologists documenting microscopic morphological features—to archive visual information about specimens. These digital archives can then be used in quantitative analyses or as computer database records, or can be included in publications, presentations, or public data-sets, such as education programs or exhibitions, thus widening dissemination of the important science that is undertaken at the Museum.

Information Resources

At the end of the last year, William Barnett, director of the Interdepartmental Laboratories, oversaw the installation and connection to the Internet of a computer network among all science departments. A prototype multi-department wide-area network, this system has grown over the past year from thirty workstations in the eight science departments to seventy workstations, thanks to the addition of local area networks in the Departments of Vertebrate Paleontology, and to the new parallel supercomputing cluster added to existing local networks in the Departments of Anthropology and Herpetology and Ichthyology and in the IDL. Additional links were made to the Museum Library and to the Hayden Planetarium. In December, Thomas Wong joined the Interdepartmental Laboratories as network administrator to provide crucial computer networking support to users and to aid in further developing information resources.

The network supports a wide array of services and resources. Scientists and other staff now enjoy electronic mail. The vast resources of the Internet, including those at the National Aeronautics and Space Administration (NASA), the United States Geological Service, and other agencies of the federal government, as well as at literally thousands of university, corporate, and K–12 school computer systems, are now available to Museum staff, which has access to files, images, sounds, and software from these sites and can in turn become a research and educational resource for the rapidly expanding web of information consumers.

During this year, a joint proposal from Dr. Barnett and Ward Wheeler, director of the Molecular Biology Laboratory, yielded funds from the National Science Foundation (NSF) and the City of New York to establish the parallel supercomputing cluster. Eleven of Hewlett Packard's most powerful workstation processors are interlinked over a high-speed fiber-optic network to form this cluster. Each processor in the cluster can
simultaneously undertake separate computations, reducing complex calculations. The cluster performs in hours complex DNA sequence alignments that used to take days on single workstations, greatly improving the ability of molecular biologists to analyze their data and helping to establish the Museum as a cutting-edge test-bed for DNA analysis.

Michael J. Novacek, vice president and dean of science and curator in the Department of Vertebrate Paleontology, is leading the way toward future computerization. He and Dr. Barnett are Museum representatives in a grant proposal currently before the Department of Commerce that will establish NATUREnet (National Architecture for Telecommunications and Unified Resource on the Environment). NATUREnet will link Museum collections with databases at major institutions around the country, including the Academy of Natural Sciences (Philadelphia), the Bishop Museum (Honolulu), the California Academy of Natural Sciences (San Francisco), the Carnegie Museum (Pittsburgh), the Los Angeles County Museum of Natural History, the Field Museum of Natural History (Chicago), the Missouri Botanical Garden (Saint Louis), the National Museum of Natural History (Washington, D.C.), and the New York Botanical Garden. Together this group controls 75 percent of the natural-history collections in the country and serves a constituency of more than 70 million people. When established, NATUREnet will provide a communications and networked database server and will increase the capacity of the Museum’s Internet access thirtyfold. Users will be able to gather information from databases at all member institutions with a single query. As such it will represent a powerful resource for the environment for scientists, educators, policymakers, and the general public.

With Museum support, our information resources are expanding rapidly. Additional plans for the coming year include the completion of local departmental cabling in the Departments of Anthropology, Herpetology and Ichthyology, and Mammalogy, and additional connections to Education, Exhibition and Graphics, General Services, and Micropaleontology Press. In addition, a pool of eight high-speed modems will provide computer connectivity to this network for scientific staff working in the field and as part of the Museum’s educational and public programs outreach. Dr. Barnett is supervising network cabling and is contracting a master plan for an information infrastructure for the Museum that will provide a detailed, comprehensive network designed to integrate existing and planned computers and computer systems throughout the Museum, including at exhibits and in other public spaces.

**Molecular Systematics Laboratory**

The Museum’s Molecular Systematics Laboratory has been involved in many projects, from sequencing fossil DNA to examining the evolutionary genetics of marine carnivores and *Drosophila*. Recent work has involved the reassessment of insect relationships on a broad scale, forcing reinterpretation of the history of flies and their close relatives, the Strepsiptera (twisted-wing insects), and of the genetic basis for large-scale evolutionary changes in the morphologically diverse Hawaiian fruit flies. Robert DeSalle, curator in the Department of Entomology, and Dr. Wheeler have been studying life-forms as diverse as ants, butterflies, fruit flies, plants, spiders, crustaceans, and mammals. Two areas of special concern are the interaction of developmental genetics and evolution, and the mathematics of the comparison of morphological and molecular information. These interests have motivated the elaboration of the laboratory’s facilities for microscopic examination of insect larval development and for the computer analysis of DNA and morphological data.
Having settled into its new facility, completed last year, the Library devoted this year to planning its continued development and growth, especially in automation. To enable the development of an automated system that will accommodate high-speed computing, including the transfer of images, cabling for a local area network (LAN) system with thirteen access points was installed. The Library was also connected to the Internet, enabling it to communicate with libraries, information services, and individuals worldwide.

Grants and Projects

As work progressed on the reclassification of the monograph collection and the entry of cataloging data into the international network OCLC, plans for an automated on-line public access catalog (OPAC) were completed. Once implemented, the OPAC will be the core of an integrated library system. Collection-level information on the Photographic and Film Collections and, eventually, image-level indexing and digitized images of the photographs will be added to the OPAC. Such an integrated system will provide users with access to a major portion of the Library’s collections through an electronic search of a single database rather than through manual searches of several files. The OPAC will be made available internationally through the Internet.

The project to reclassify all monographs into the Library of Congress system and to enter the Library’s holdings into OCLC, funded by a U.S. Department of Education Title II-C grant, began its second and final year. Miriam Tum, assistant director for technical services, and Diana Shih, senior cataloging librarian, are managing the project, for which they have overseen the reclassification of more than 60,000 titles and the relabeling of more than 24,000 volumes of monographs and serials. In a major setback for the continued development of United States research libraries, the Title II-C program, the major federal grant program for research libraries, was not funded for the next fiscal year.

A grant of $14,454 from the New York State Library Discretionary Grant Program was received for the project to rehouse rare photographic albums, which will be carried out under the direction of Conservator Barbara Rhodes, who also oversees the project to deacidify 1,140 brittle books under a grant from Trustee Robert G. Goelet. Unfortunately, Akzo Chemicals no longer offers this effective service, and no other comparable mass deacidification methods are available on a commercial basis. Mr. Goelet has agreed to have the funds used for preservation photocopying of rare and fragile materials to provide working copies for the scientific staff. Funds provided by Florence Fearrington enabled the Library to hire conservator Paula Schrynemakers to restore and repair some fifty rare books on malacology.

Many projects could not have been accomplished without volunteers. Volunteer Charles King and Library Director Nina Root identified and transferred 479 titles to the Rare Book Collection; Mr. King also assisted Roscoe Thompson, senior reference librarian, in completing the locator file for the collection. Eleanor Schwartz rehoused and arranged early Museum archives (1863–1906) and the Cyril Dos Passos correspondence and arranged the biographical file. Terri Gerardo rehoused and arranged twelve cartons of F. Martin Brown papers. She also placed the vertebrate paleontology expedition photographs in mylar sleeves and arranged them. Dr. Leon Sternfeld used his medical knowledge in arranging the Franz Weidenreich manuscript collection. Beatrice Alphenaar cataloged all the newly received black-and-white negatives and prints, and Colette Dexter dry-mounted them onto file cards. Judith Perera, working with Craig Morris, curator of Anthropology, arranged, sleeved, and researched captions for the Peruvian and Bolivian photographic collections. Christopher Bastedo is rehousing and relabeling the hand-colored glass lantern slides. Royal Scheiman has been inventorying and identifying cataloging problems in the Rare Book Room. William Steible has been helping Gary Gutman, computer coordinator, develop various computer applications, and Josephine D’Ambrosio continued to make pamphlet binders, boxes, and envelopes to protect fragile materials. The video for the exhibition The World Explored: 125 Years of Collecting Photographs, on view in the Library Gallery from March 1994 through March 1995, was produced by Hal Bernard. Eleven volunteers have
relabeled the spines of all the reclassified books. This devoted cadre of volunteers was ably assisted by the Library staff.

**Exhibits, Loans, Gifts**

The World Explored: 125 Years of Collecting Photographs, part of the Museum's 125th-anniversary celebration, was installed in the Library Gallery by Ms. Root, Special Collections Manager Joel Sweimler, and Ms. Rhodes. The P. Bryant Baker bust of Theodore Roosevelt was loaned to the office of New York City Police Commissioner William Bratton; Philip de Laslo's portrait of Theodore Roosevelt was loaned to the National Academy of Design for the exhibition Edith Wharton's New York; and John J. Audubon's Birds of North America, featuring the Ivory-billed Woodpecker, was loaned to the Museum's Akeley Gallery exhibition Cuba: Nature of an Island.

Film footage of the 1920s Central Asiatic Expeditions was used in the WGBH-TV/NOVA production "Dinosaurs of the Gobi." A video copy of "The Lost Art of the Tlingit of Alaska" (1957) was donated to the Glacier Bay National Park and Preserve. The tape was viewed by Yakutat elders, who were gratified that part of their lost culture had been preserved. Dry Bay chief Paul Henry said, "By showing this, you have made peace instead of war with us."

Mary De Ganahl White funded a student production of an hour-long videotape of the films of Africa and Asia made in the 1950s...
by her father, Charles De Ganahl, that Mrs. White had donated to the Library ten years ago. Four color-films documenting Curator Emeritus Norman Newell’s 1960s work in the Bahamas coral reefs were transferred to the Library from the Department of Invertebrates. The Hayden Planetarium deposited thirty paintings and the Anthropology Department five tape-and-wax cylinder recorders used by Franz Boas, Margaret Mead, and Harry Shapiro. The Photography Studio gave the Library twenty cartons of antique cameras and photographic equipment used by Museum staff over the last 100 years. Many of the cameras are displayed in The World Explored.

Elizabeth Shehadi and Susan Farrell donated more than 300 Titian Ramsay Peale items, including oil paintings, pencil sketches, watercolors, photographs, calling cards of Civil War figures, and artifacts collected by Peale on the U.S. Exploring Expedition, 1838–1842. This gift was added to the Library’s T. R. Peale collection, greatly increasing its historic value. The estate of F. Martin Brown, Museum entomologist, deposited his correspondence and scientific papers. Gifts of books were received from numerous individuals and from the Cornell University and Hunter College libraries.

Services and Activities

The Library added 1,300 monographs, 24 new journal subscriptions, and 10,600 journal issues to the collection. More than 22,000 issues of Museum scientific publications were distributed worldwide. Nineteen sets of Bloch’s Allgemeine Naturgeschichte der Fische were sold; proceeds from the net sales are shared with the Department of Herpetology and Ichthyology.

This year 2,228 volumes were commercially bound; 1,140 items were deacidified; and more than 2,100 items were repaired, restored, and rehoused. Library hours for Museum staff were extended by opening on Mondays.

The Library’s new facility has attracted 35 percent more users: more than 10,000 patrons were served, 23,900 reference questions answered, and 23,500 items circulated. As of January 1994, currently received journal issues are maintained in the Current Literature Room and no longer circulate. Nearly 900 requests were received from other libraries; 658 interlibrary loan requests were filled for the scientific staff; and 28 database searches were performed.

The New York State Regents Library Advisory Council met in the new conference room and toured the new Library. New York Botanical Garden librarians came to investigate the Internet connection and to visit the Conservation Laboratory. Nambaryn Enkhbayar, Mongolian Minister for Culture, viewed Mongolian photographs; Zachary Baker, of the YIVO Institute for Jewish Research, toured the new facility to learn how the Library was prepared for moving; and members of the New York Society Library toured the Library.

The Fellows of the Library, chaired by Trustee Gerard Piel, held two dinners in the Library. Robert Carneiro, curator, Department of Anthropology, American Museum of Natural History, and Thomas E. Lovejoy of the Smithsonian Institution were the speakers.

Ms. Rhodes attended the American Institute of Conservation in Nashville; Ms. Root and Ms. Tam attended the international conference of the Society for the History of Natural History in London. Ms. Shih, Ms. Root, and Mr. Sweimler attended the American Libraries Association Conference in New Orleans. Ms. Root presented an Education Department Lecture Series on great explorations that included a visit to the Library. She and Mr. Sweimler gave slide lectures on Museum architecture, history of exhibits, dioramas, and collecting expeditions to prepare volunteers to lead 125th-anniversary tours. In addition, Mr. Sweimler gave two tours of the exhibition halls to volunteers, focusing on the development of each hall and of the Museum buildings, and a talk about the Library during the Museum Facilitators training program.
The Grants and Fellowships Programs broaden the Museum’s base of scientific investigation and reinforce its commitment to the education and training of scientists. Each year these programs—the Research and Museum Fellowship Program, the Doctoral Training Program, the International Graduate Student Fellowship Program, the Research Grants Program, and the Research Experiences for Undergraduates (REU) Program—provide opportunities for more than 250 undergraduate and graduate students, postdoctoral investigators, and established scientists, including international scholars, to conduct research in partnership with Museum scientists. This year’s international participants, from Africa, Australia, China, Great Britain, India, Mexico, the Netherlands, Russia, South America, and Ukraine, have not only enriched the exchange of scientific ideas but have fostered keystone relationships between the Museum and foreign institutions.

Since its inception a decade ago, the highly competitive Research and Museum Fellowship Program has supported seventy-one postdoctoral scientists engaged in independent research within a limited period of time, usually one or two years. The Doctoral Training Program, an educational partnership with selected universities, is dedicated to the training of Ph.D. candidates. The Museum has joint programs with Columbia University in vertebrate and invertebrate paleontology, anthropology, molecular biology, and mineral sciences; with Cornell University in entomology; with the City University of New York in evolutionary biology; and with Yale University in molecular biology/systematics. With the support of the recently established International Graduate Student Fellowship Program, the Museum successfully recruited five international students to pursue doctoral degrees focusing on systematics, biodiversity issues, and conservation biology. Through this exciting initiative students will develop the expertise to foster and advance environmental conservation and policy-making in their own countries.

The Research Experiences for Undergraduates (REU) Program, a summer internship program supported by the National Science Foundation, immersed ten students in the challenge and excitement of original research at the Museum. Under the direction of Melanie L. J. Stiassny, associate curator in the Department of Herpetology and Ichthyology, this program, now in its sixth summer, promotes student participation in discussions and special lectures that focus on evolutionary biology, systematics, the biodiversity crisis, conservation, and career development.

The Grants Program supported 213 predoctoral candidates and postdoctoral investigators. The program awarded 43 Frank M. Chapman Memorial Fund grants in ornithology; 56 Lerner-Gray Fund for Marine Research grants; 65 Theodore Roosevelt Memorial Fund grants in North American zoology and paleozoology; and 4 Southwestern Research Station Student Support Fund grants. Collection Study Grants enabled 45 graduate students and scientists to study the collections of the Departments of Anthropology, Entomology, Herpetology and Ichthyology, Invertebrates, Mammalogy, Ornithology, and Vertebrate Paleontology.

The Grants and Fellowships Programs are made possible by the generosity of many donors and grants from funding agencies, including the Esther Hoffman and William Beller Fund, the Boeschenstein Fund, the Frank M. Chapman Memorial Fund, the S.C. and P. Coleman Memorial Fund, the Lincoln Ellsworth Fund, the Hoffman Research Fund, the International Student Fund, the Franklin H. Kalbfleisch Endowment Fund, the Lerner-Gray Fund for Marine Research, the National Aeronautic and Space Administration, the National Science Foundation, the Theodore Roosevelt Memorial Fund, the Southwestern Research Station Student Support Fund, the Thorne Fund, the Anthony and Madeline W. Traina Fund, and the U.S. Department of Energy.

This year twelve Research Fellows were in residence, engaged in independent projects at the Museum or one of its field stations. Molly Lee, the Lincoln Ellsworth Research Fellow in the Department of Anthropology, examined the history and sources of Alaskan Eskimo coiled basketry. This art, practiced only by women and first reported more than a century ago, flourishes today yet has never been documented before. In the Department of Entomology, Kalbfleisch Research Fellow Donat Agosti began a study intended to resolve the higher classification of
formicine ants, represented by carpenter ants. Although ants are often used as models for fundamental research, the lack of rigorous phylogenetic analyses makes it difficult to place these important findings in an evolutionary context.

Vladimir Ovtsarenko, a curator at the Zoological Institute of the Academy of Sciences of Russia, in St. Petersburg, accepted a Lincoln Ellsworth Research Fellowship to revise the Gnaphosidae family of North Asian spiders. Sergio Roig, a visiting scientist from the Instituto Argentino de Investigaciones de Zonas Aridas, in Mendoza, Argentina, accepted a one-year Research Fellowship supported by a National Science Foundation grant. His work in the Department of Entomology explored the evolution and biogeography of the ground beetles of the tribe Broschini (Coleoptera Carabidae).

Todd Reeder, a Kalbfleisch Research Fellow in the Department of Herpetology and Ichthyology, used both morphological and molecular data to study the phylogenetic placement of limbless lineages (e.g., snakes) within the reptilian order Squamata. Todd Rae, Kalbfleisch Research Fellow in the Department of Mammalogy, explored the phylogenetic relationships of the platyrrhines, a radiation of anthropoid primates whose relationships remain somewhat obscure. Dr. Rae examined characters of the facial skeleton in platyrrhines, both extinct and extant. His research will provide a unique test case for evaluating the importance of various anatomical systems to phylogenetic analysis in mammalian systematics, and an important interpretation of the phylogeny of New World primates.

Rosamond Kinzler, Kalbfleisch Research Fellow in Mineral Sciences, is investigating the formation of platinum-rich rocks of the Bushveld Complex in South Africa and the Stillwater Complex in Montana. The data are necessary to evaluate and improve on recent geochemical and petrologic models for the formation of these economically significant rock formations. Luis Chiappe, a research scientist at the Museo Argentino de Ciencias Naturales “B. Rivadavia,” in Buenos Aires, began his second year as Frick Research Fellow in the Department of Vertebrate Paleontology. He continued his analysis of the osteology and interrelationships of the abundant Late Cretaceous enantiornithine birds, a subclass of Cretaceous flying birds. Dr. Chiappe also did fieldwork in the Mesozoic deposits of Mongolia and Argentina.

Frick Research Fellow Meng Jin began a two-year project in the Department of Vertebrate Paleontology on the systematic and biostratigraphic studies of mammals from the Bayan Ulan area of Inner Mongolia. Chapman Research Fellows Nedra Klein, Gary Nunn, and John Bates began their appointments in the Department of Ornithology. Dr. Klein is investigating the evolution of patterns of geographic variation in plumage coloration and sexual dichromatism in the Stripe-headed Tanager. Dr. Nunn began a species-level molecular study of the albatrosses of the world. Dr. Bates is using mitochondrial DNA sequences to study the genetic structure in Amazonian birds. This project is among the first studies of molecular evolution in Neotropical birds, and furthers our understanding of avian evolution in the Amazon Basin.

Of the fifteen Museum-supported students in the Doctoral Training Program, five completed degree requirements and ten continued their research in the Museum’s scientific departments. From Columbia University’s Department of Geological Sciences, Bruce Lieberman completed his Ph.D. under the direction of Department of Invertebrates Curator Niles Eldredge; Sherri McGhee is conducting her project in the Department of Vertebrate Paleontology under the supervision of Vice President and Dean of Science and Curator Michael J. Novacek; Gina Gould is working with Department of Vertebrate Paleontology Curator Malcolm McKenna and Herpetology and Ichthyology Assistant Curator Darrel Frost; Alexander Kellner continued his work with Curator John Maisey, Department of Vertebrate Paleontology; and Robert Hutchinson completed his master’s thesis with Edmond A. Mathez, chairman and associate curator, Department of Mineral Sciences, as adviser. All conduct their research at the Museum. Dilrukshan Wijesinghe, Carole Griffiths, and Alejandro Espinosa, of City College, City
University of New York, continued their research at the Museum: Mr. Wijesinghe with Norman Platnick, curator, Department of Entomology, and Ms. Griffiths with George Barrowclough, chairman and associate curator, Department of Ornithology. Mr. Espinosa began his second year of the program under the direction of Joel Cracraft, curator, Department of Ornithology.

Pablo Goloboff, who completed his Ph.D., and Kefyn Catley, who is continuing his research, are at Cornell University working under the direction of Dr. Platnick. Paul Vrana, from Columbia University’s Department of Biological Sciences, completed his Ph.D. under the direction of Associate Curator Ward Wheeler, Department of Invertebrates/Molecular Systematics Laboratory.

The AMNH-Yale University Program is represented by the following students: Paulyn Cartwright and Richard Baker, who are studying with Robert DeSalle, associate curator, Department of Entomology; Robin Absher, who, also under the direction of Dr. DeSalle, completed her Ph.D.; and Cheryl Hayashi, who is working with Dr. Wheeler.

This summer, fifty applicants representing many universities in the eastern United States applied to the Museum’s Research Experiences for Undergraduates (REU) Program; ten undergraduates were chosen to participate. Jessica Zuckerman, finishing her sophomore year at Brown University, studied coleoptera and lepidoptera higher-level systematics under the direction of Dr. DeSalle. Briana Pobiner, completing her freshman year at Bryn Mawr College, worked on Cretaceous fossils with Neil Landman, chairman and associate curator, Department of Invertebrates. Erich Tilgner, who will be a senior at Cornell University, studied the systematics and evolution of stalk-eyed flies with David Grimaldi, chairman and associate curator, Department of Entomology. John Ascher, who graduated from Wesleyan University, examined the nesting biology, floral preference, and systematics of bees (Apoidea) under the direction of Jerome Rozen, curator, Department of Entomology. Emily Hu, finishing her junior year at Columbia College, examined the molecular systematics of insects with Dr. Wheeler. David Yen Chen, completing his junior year at the University of Rochester, worked with Dr. Eldredge on ecological and evolutionary studies in the Middle Devonian Hamilton group. Heidi Basile, a graduate of Barnard College, studied wing polymorphism under the direction of Randall T. Schuh, curator, Department of Entomology. Lisa Mezzacappa, completing her freshman year at the University of Virginia, conducted research on the reproductive biology of cichlid fishes under the direction of Dr. Stiassny.

Also working with Dr. Stiassny was Monique Scott, a sophomore at Vassar College, who examined the phylogenetic analysis of two endangered Malagash cichlids. Jonathan Geisler, a senior at the College of Charleston, studied the evolutionary relationships among Microchiropteran bats with Nancy Simmons, assistant curator, Department of Mammalogy.
The primary goal of the Department of Education is to offer Museum visitors a broad spectrum of programs designed to foster their interest in and literacy about the world around them. A particular focus of these programs is environmental literacy—the capacity to perceive and interpret the health of environmental systems, and to take appropriate steps to maintain, restore, or improve the well-being of those systems.

This year the Department continued to offer elementary school children lively introductions to natural-history concepts, using the Museum’s collections and exhibitions to add a tangible component to academic investigations. Older youth were exposed to basic research methodology through hands-on projects focusing on how scientists investigate questions in their disciplines. For adults, teachers, and family groups, the study of natural history was presented through lectures, film festivals, science and cultural/arts demonstrations, formal courses, tours, and field trips.

Service to Children and Teachers

An affiliate of the New York City public schools since 1874, the Museum today concentrates its efforts on improving the quality of science and cultural studies in our schools. This year saw expansion in both precollege programs for students and teacher enhancement programs.

The Precollege Program is a series of single- and multiple-visit presentations and hands-on workshops taught by senior Museum instructors, Museum scientists, special-education specialists, the Dalton School lecturer, and consultants. From October through June the Department registered more than 15,000 students and their teachers in grades 1 through 9 in this program. In addition, during the same period 134,728 students and their teachers visited the Museum on self-guided field trips.

The Precollege Science Collaborative for Urban Minority Youth (PSC) provides an intensive two-year natural-science research experience for urban minority youth. Students participate in a series of science colloquia, seminars, and technique workshops at the Museum and at other institutions, such as Columbia University. This year, the first eight high-school seniors completed the program. Each of them developed research projects under the guidance of scientists from the Museum and collaborating institutions. The Department of Education congratulates the young graduating scholars and wishes them all great success in their collegiate life.

The graduates, their mentors, and topics are as follows:

Adetokunbo Anifalaje, Fiorello H. La Guardia High School of Music and Art, who worked with Peter Moller (research associate in ichthyology, American Museum of Natural History; professor of biopsychology, Hunter College, City University of New York) on African Elephant Nose Fish (Gnathomeinus peterisii).

Cynthia Duran, The Chapin School, and Elvani Pennil, A. Philip Randolph Campus High School at City College, City University of New York, who worked with Ethel Tobach (curator emerita, Department of Mammalogy, American Museum of Natural History) on Social Behavior of the Japanese Monkey (Mucaca fuscata).

Emilia Maynard, Fiorello H. La Guardia High School of Music and Art, who worked with O. R. Anderson (senior research scientist, Lamont-Doherty Geological Observatory, Teachers College, Columbia University) on Experimental Studies of Feeding, Nutrition, Growth, and Carotene Content of Artemia salina.
A group of young people learns how to paint traditional Indian floor decorations during October's Autumn Festival of India.

**Encarnada Mercado**, DeWitt Clinton High School, who worked with O. R. Anderson on *Xenopus laevis* Ontogeny.

**Ilana Mercado**, Fiorello H. La Guardia High School of Music and Art, and **Ybanezia Rodriguez**, DeWitt Clinton High School, who worked with Sidney Horenstein (coordinator of environmental programs, Department of Invertebrates, American Museum of Natural History), Edmond Mathez (associate curator and chairman, Department of Mineral Sciences, American Museum of Natural History), and Melanie Stiassny (associate curator, Department of Herpetology and Ichthyology, American Museum of Natural History) on *The Differential Effects of Climate on Tree Growth in Urban and Rural Environments*.

**Michael Narine**, Franklin K. Lane High School, who worked with J. Charles Cole (curator, Department of Herpetology and Ichthyology, American Museum of Natural History) on *Hybridization Among Whiptail Lizards in Arizona*.

The **Museum School Initiative**, a collaborative project among the American Museum of Natural History, the Science School at Community School District 3's Intermediate School 44, and the Manhattan Institute, completed a successful second year. This project merges the Museum's scientific, artistic, and technological resources with I.S. 44's educational resources in order to develop an engaging and relevant curriculum that provides students with the opportunity for maximum social and intellectual growth. This year's work with eight teachers and more than 180 students involved more than seventy different Museum School experiences. The project has field-tested a new Museum curriculum for the 6th and 7th grades, exemplifying the integration of school and Museum resources.

One of the several interdisciplinary units developed ties science laboratories to social issues. Here students investigate such topics as the world of microbes and human health, the mechanisms of genetics, the issues surrounding domestication and biodiversity in the animal kingdom, the chemistry of water quality and its impact on ecosystems, and the effects of water pollution on life. Students may also study flight in animals—incorporating history, mathematics, and evolutionary theories—and carry out genetic studies of *Xiphophorus maculatus* (the platyfish). Another unit comprises studies in cultural anthropology. Areas of study
include native cultures of the New World, interpretation of the Lascaux and Altamira cave paintings and the creation of “modern cave-paintings,” and a trip to the Holocaust Memorial Museum in Washington, D.C. as part of a unit examining discrimination, social Darwinism, genetics, and twentieth-century history.

The Dalton School collaboration, now in its tenth year, supports an anthropology scholar in residence at the Museum. This year saw a major increase in the diversity of program offerings conducted by the Dalton School lecturer. Working with the Dalton faculty, the lecturer conducted more than seventy-five different sessions involving anthropology or natural-science topics developed for either school or Museum use. The lecturer also serves as a consultant for curriculum development projects and conducts teacher workshops and teacher courses in the Department’s College Courses for Teachers Program.

The Teacher Associates Programs, now in their third season, supported forty-three elementary through secondary-school teachers of math, science, and special education in designing Museum and classroom curricula. The multiyear commitment by these teacher associates, Museum educators, and scientists has established new collaborative networks to improve teachers’ utilization of the Museum’s vast educational resources. Teacher associates’ work this year focused on the topics of endangered species, natural-science research techniques, nature studies, and human biology, as well as the use of objects in the Museum to teach mathematics. The results of the pilot studies will be used to create new workshops, courses, and resource materials to enhance local and national curriculum-reform guidelines. In addition, each teacher is required to conduct in-service training sessions for their school administrators and colleagues on what they learned during their Museum assignment.

The Moveable Museum is a specially-designed, wheelchair-accessible bus that is a self-contained mobile museum, outfitted with changing exhibitions and equipped with a state-of-the-art multimedia exhibit system. A collaborative program between the Museum and other New York City cultural institutions, the Moveable Museum is designed to bring educational resources to underserved New York City schools, hospitals, shelters, community centers, parks, and street fairs and to encourage students and families to visit and utilize the rich variety of resources available at each of the collaborative partner institutions. The first full academic season for the Moveable Museum school-and-community programs was announced to all New York City community school district superintendents, to subject coordinators for science, mathematics, social studies, and art, and to community leaders. Within two days, reservations for the year were accepted for approximately 100 school visits. As a result, a total of 8,417 schoolchildren and their teachers participated in one of the following available programs: the American Museum of Natural History’s “Global Warming: Understanding the Forecast,” the Staten Island Children’s Museum’s “Wonder Water,” the Queens Museum of Art’s “Panorama of New York City,” the New York Hall of Science’s “Seeing the Light: Patterns of Perception,” and the Brooklyn Botanic Garden’s “Composting: Making Black Gold.”

During this same period, the Moveable Museum scheduled weekend and holiday site-visits to neighborhoods throughout the five

![Hyeon Kyn Park performs a dance in May.](image-url)
boroughs of New York City and was visited by 11,800 members of the general public.

The Moveable Museum is a partnership among the New York City Council, the Museum's Departments of Education and Exhibition and Graphics, the New York City Department of Cultural Affairs, Museum Partners, Chase Manhattan Bank, N.A., and Brooklyn Union Gas.

**Multicultural Programs for School Groups** expanded this year. In addition to the successful offering of Black History Month programs, two new week-long series were developed. Programs focusing on Caribbean cultures were held in recognition of the 500th anniversaries of the first European landings at Puerto Rico and the Dominican Republic, and a series was held in conjunction with Asian/Pacific American Heritage Month. Designed to promote intercultural understanding and exchange, these activities engaged nearly 13,000 students in craft and textile workshops, storytelling, and in performance demonstrations, all of which enhanced their school curriculum.

After-school outreach programs for youth continued with the fifth consecutive **Cultural Arts Program For Children Living in Temporary Housing**, supported in part by the New York City Department of Cultural Affairs. This year the program provided eighteen children living in temporary housing in the Bronx with a series of workshops focusing on African and African-derived oral folklore. Using the arts (music, song, drama), crafts (mask-making, instrument-making), and a knowledge of historical artifacts (gained through visits to Museum exhibition halls) the children learned about the power of oral traditions as a communication tool. Participants received one-year family memberships to encourage them to continue visiting the Museum. A special evening program at the shelter exposed children and their families to other Museum resources through a visit by the Moveable Museum and representatives of the Amateur Astronomers Association. The children performed their own folk tale and viewed the night sky, achieving an extraordinary ending to this week-long Easter-recess project.

For the fifth consecutive year, the **Arts-in-Education program**, sponsored by the New York State Council on the Arts, offered an intensive arts program enhancing the Asian global studies curriculum for 165 ninth graders in four New York City high schools. Each class selected one art form to study intensively over the seventeen-session program. The program began with workshops focusing on the cultural arts of China/Asia, for which students and their teachers were given an instructive session using the Museum's Asian teaching collection. This orientation was followed by presentations at each school on the music, dance, calligraphy, and lion dance of China. Integral components of this series were two cross-cultural roundtable discussions on cultural stereotypes, historical Asian imagery, and impressions of cultures different from and similar to the students' own. The program culminated at the Museum with a folk dance and folk music performance and with student presentations on their study topics.

This year 242 students from twenty-nine schools participated in twenty-two courses of five sessions each offered through the **Creative Expression Through Arts and Science After-School Program**. This program, supported by the Borough President of Manhattan, enables students attending Manhattan high schools to explore the natural world. The program is so well-received by students that many take four or more courses, investigating subjects ranging from The Arts in Science to Vertebrate Anatomy. Students had a chance to meet and learn from scientists, poets, and sculptors as well as to use specimens from the Museum's scientific collections, and to visit scientific laboratories.

**Learning Experiences for Families**

The **Discovery Room**, one of two hands-on family learning centers in the Museum, is open on weekends for children between the ages of six and eight and their parents. This year, more than 21,600 visitors explored the natural world using small exhibits and "Discovery Boxes" to engage in activities that included Memory Match Connection (in which participants match raw materials from nature to human-made articles) and Starfish and Their Relatives (in which exoskeletons of living echinoderms are displayed alongside similar-looking fossil relatives), among others. The Discovery Room is a place for parents to effectively introduce science concepts to their children, and to
interpret the Museum's extraordinary collection for them. On weekday mornings during the academic year, the Discovery Room is used for special-education classes.

The Alexander M. White Natural Science Center, the first learning center of its type in a natural-history museum, is devoted to the public study and understanding of the natural and human-made environments of New York City. This year 72,491 visitors explored many interactive displays and small live exhibits containing local species of aquatic and terrestrial creatures. On weekday mornings during the academic season, the Natural Science Center is the primary study area for lower-age elementary school groups and for teacher training.

Adult Education

This year's program in Adult Education focused on topics in science, archaeology, culture, literature, and history. Highlights included a lecture series on the crisis in biological diversity; a family program on the importance of local wildlife conservation, with living examples on display; and lectures by noted authors and scholars. Donald Johanson, Richard Leakey, Diane Ackerman, and Nobel Prize-winning scientist Murray Gell-Mann were among the speakers. Tony Hillerman, best known as the author of mystery novels involving the Navajo tribal police and the Navajo culture, presented an exciting and informative talk that provided unusual insight into life in a modern-day Native American society, as well as information about techniques of writing social fiction.

Robert Eisenman, professor of Middle East Religions, California State University at Long Beach, challenged the traditional interpretations of the Dead Sea Scrolls, placed in caves more than 2,000 years ago and discovered in 1947. Jared M. Diamond, professor of physiology at the University of California at Los Angeles Medical School and a member of the National Academy of Sciences, discussed our disastrous biological and cultural past and its implications for our immediate future. Dr. Diamond is a frequent contributor to Natural History magazine. These were only a few of the thirty-one lectures and lecture series presented over the year. The adult lecture-series program drew more than 4,000 attendees.

The week-long Margaret Mead Film and Video Festival, in its seventeenth year, continued to draw large audiences to its screening of new and provocative documentaries. The 1998 festival featured sixty-two works, including a film-and-video retrospective of Timothy Asch, who has produced celebrated works on subjects ranging from religious traditions in Indonesia to daily life among the Yanomami of the Amazon Basin. In conjunction with the United Nations' Year of Indigenous Peoples there were special screenings of and a symposium on indigenous media-making. Nearly 5,000 people attended this year's festival, which included filmmakers, and their work, from all five continents. The festival completed its first year-long national tour, by the end of which an additional 3,500 people had experienced the power of ethnographic film as a communication tool. Screenings were held at nine sites, including the Pacific Film Archive, University of California at Berkeley; Syracuse University, Syracuse, New York; and the National Museum of Natural History, Washington, D.C.

Twenty adult field-trips, workshops, and special events brought more than 2,000 people together to participate in a variety of activities, such as sketching under the tutelage of a Museum artist; taking a two-hour morning botany walk in Central Park; touring the historic Upper West Side; visiting the last operating zinc mine in New Jersey; taking three four-hour whale-watching cruises off the rich feeding grounds of Stellwagen Bank, near Cape Cod; learning techniques for bird identification; and relaxing on two three-hour sunset cruises up the Hudson River and around the nooks and crannies of New York's Upper Bay. "ID Day," which was part of the festival Celebrate 125! The Rhythm of the World, brought hundreds of members of the public to meet Museum scientists, who examined, analyzed, and gave information on the history and classification of all materials presented to them. New York City's Department of Environmental Protection also tested water samples and gave out conservation information, and specimens from the Museum's little-seen scientific collections were on display.

This year the Museum's multicultural program Global
Cultures in the Changing World saw over 30,000 adults and children attend 125 lectures, conferences, panel discussions, workshops, films, and dance, music, and dramatic performances. These events were all designed to celebrate the great cultural diversity of our planet and to foster discussion of contemporary global issues from a multicultural perspective. Participants examined cultural misconceptions and biases and their affects on adults and youth, and explored the preservation of and changes in cultural traditions as a result of contact with other cultural groups. The following were among the noteworthy events in the series:

The Formosa Aboriginal Dance Troupe: Anthropologist Hu Tai-Li, of the Academia Sinica and National Tsing Hua University, Taiwan, Republic of China, contextualized the different ritual movements and music performed by three tribes—the Tsou, the Ami, and the Pehmain.

African Royal Celebration: The Museum held its first outdoor festival, a day-long celebration featuring traditional African music and dance. The occasion featured a royal reception honoring the premier visit to the United States by Osagyefo Kuntunkununku II Okyenene, a Ghanaian king. This event was a collaborative effort among the Department of Education; Enid Schildkrout, curator, the Department of Anthropology; and the Akyem Association, Inc., U.S.A.

Autumn Festival of India: The Museum’s second annual celebration of the Autumn Festival of India, cosponsored with the Association of Indians in America, featured a concert of South Indian classical music by renowned flutist T. Viswanathan and his ensemble, and Indian artists demonstrating traditional crafts, including ten days of work on rangoli (floor decorations) in the Hall of Asian Mammals.

Gruppo Congresso: A Chilean performing ensemble that incorporates Latin American folklore, jazz, and contemporary musical elements presented a concert with themes related to ecology, human rights, and the extinction of ancestral races.

The Accelerating Global Crisis: Meeting the Challenge was a highly informative, four-part lecture series on the critical environmen-
During the past year, the Department of Exhibition and Graphics has engaged itself with concept development and design work for a new first-floor installation devoted to the topic of biodiversity. The team developing the exhibition includes, from the science staff, Niles Eldredge, curator, Department of Invertebrates; Joel Cracraft, curator, Department of Ornithology; and Sidney Horenstein, coordinator of environmental programs, Department of Invertebrates; and, from the exhibition staff, Samuel Taylor, director of exhibitions; Kevin Coffee, manager of exhibitions; and Willard Whitson, senior exhibit developer. The planned 8,500-square-foot exhibit includes very large re-creations of key habitat types, including tropical rainforest, temperate forest, and marine environments. Planned interactive resources include print, video, and digital media, as well as an interactive link to the Internet. These will be combined with more traditional museum displays of models, specimens, and illustrations to illustrate the importance of understanding and preserving the great diversity of life on this planet. The exhibit is presently scheduled to open in 1997-1998.

A very large component of the Museum's anniversary celebrations are "expeditions" created to guide visitors' explorations of the Museum's vast exhibition spaces and to offer new insights into the Museum's research and education activities. These will be launched in January 1996. Expedition: Treasures from 125 Years of Discovery, a Museum-wide effort, will feature fifty specimens, exhibits, and research achievements that may be explored via a self-directed CD-ROM audio tour. In addition, visitors will get a special guidebook at the "base camp" from which they will begin their expedition.

Museum-organized traveling exhibitions continued to make their ways across North America during the past year. African Reflections: Art from Northeastern Zaire concluded its three-year tour this past January at the Elvehjem Museum in Madison, Wisconsin. Global Warming: Understanding the Forecast was presented at the Carnegie Science Center, in Pittsburgh, and then at the Museum of Natural History in San Diego. It will continue to tour through 1997. Chiefly Feasts: The Enduring Kwakwalt Potlatch met with great critical and public appreciation during its showings at the Houston Museum of Natural History and the Seattle Art Museum. This exhibition will conclude its tour at the Canadian Museum of Civilization, in Ottawa, in May 1995.

The Arthur Ross Foundation generously supported a series of temporary exhibitions in the Akeley Gallery. Cuba: Nature of an Island, which opened at the Museum in September, described through photographs and specimens the fauna of that island and the changes in biodiversity that have occurred during the post-Colombian era. Opening at the Museum in January 1993, Waurá presented a series of drawings that chronicle the decorative and symbolic iconography of the Waurá tribe in Brazil. The finalists of the 1993 Wildlife Photographer of the Year competition, organized by the British Museum of Natural History and Wildlife magazine, were presented during the spring and summer in a display of color photographs documenting natural-history subjects from all over the globe. Antarctica, in Gallery 3, examined the ecology and natural history of that continent through specimens, models, video presentations, and interactive displays.

This life-size mannequin of the Warrior Priest, the most important leader in Moche society, was displayed in Royal Tombs of Sipán.
A re-creation of one of the three tombs of the nobles of the Moche society from which the objects in Royal Tombs of Sipán were excavated.

The exhibition was organized by the Science Museum of Minnesota, in St. Paul, and was on view at the American Museum of Natural History from late October to January.

Sharks! Fact and Fantasy, also in Gallery 3, was the largest and most comprehensive exhibition to examine these denizens of the deep. The exhibition, which included interactive displays and video footage to explain shark biology and behavior, was organized by the Los Angeles County Museum of Natural History. It was shown here from February to May.

A collection of gold ornaments, pottery, and other artifacts formed the exhibition Royal Tombs of Sipán, which opened in Gallery 3 in June 1994. The objects in the exhibition were excavated from a series of three tombs belonging to nobles of the Moche society, which dates from the first millennium A.D. in what is now northern Peru. Unique to the Museum's installation of the exhibition was a full-sized reproduction of the first of these tombs. Royal Tombs of Sipán was organized by the Brüning National Archaeological Museum in Lambayeque, Peru, and the Fowler Museum, in Los Angeles. It was coordinated for the Museum by Craig Morris, curator, Department of Anthropology.

The staff of the Exhibition Department participated in a number of professional conferences during the past year. In April, at the national meeting of the American Association of Museums (AAM), in Seattle, Ellen Giusti, exhibition evaluator, presented a study of visitor responses to exhibits in the new Hall of Human Biology and Evolution. Jeffrey Jones, exhibition software developer, and Dr. Taylor also spoke at the AAM conference. Larry Langham, exhibition designer, conducted a seminar on exhibit design and construction for the National Association for Museum Exhibition, a committee of the AAM, at the Museum in June.
The Museum's publications, membership, and marketing activities both support the institution's educational mission and contribute to its operating budget. For example, Natural History, the Museum's monthly magazine, not only informs readers worldwide about the scientific research underway in the Museum's fields of study, but attracts members to Museum-sponsored educational programs and trips and to Museum-endorsed books and products, enabling this division to make a positive financial contribution to the Museum.

Natural History Magazine

Natural History draws on researchers both within and outside the Museum to illuminate current science and ethnography for a general audience. This year's contributors covered a wide range of subjects, including animal behavior, archaeology, astronomy, biomechanics, ecology, ethnography, evolutionary theory, folklore, genetics, medicine, microbiology, paleontology, and physiology.

Among the highlights of the year's issues were narratives by biologists reporting on discoveries made in the field. Entomologist Tristram Wyatt probed the subterranean existence of a beach-dwelling beetle; zoologist Richard Wahlé filled in a missing chapter in the lobster's life history; and entomologists Jeanne and David Zeh made nocturnal forays into the Costa Rican rainforest to unravel the intertwined life cycles of harlequin beetles, fig trees, and pseudoscorpions. Some authors used evolutionary theory to throw light into unexpected corners. Biologist Randy Thornhill, for example, wrote on the connection between body symmetry and sexual attraction, while paleontologist Loren Babcock explored the ancient origins of right- and left-handedness.

Museum paleontologists Mark Norell, Luis Chiappe, and James Clark wrote of visiting the Gobi Desert and discovering new specimens of Mononykus, a 70-million-year-old animal that they concluded was a primitive, ground-dwelling bird that may have shared a common ancestor with Archaeopteryx. Infectious-disease specialist Jonathan Kaplan described his discovery among Panama's Guaymi Indians of a virus previously known only among the Japanese. Zoologist Roger Payne summed up more than twenty years of observing the behavior of right whales from his field station on the coast of Patagonia. Zoologist Bernd Heinrich explained why buttercups in the Negev Desert are not yellow but red, and Steven Vogel, also a zoologist, demonstrated how the aerodynamic properties of leaves help keep trees from toppling during storms.

Ethnographic and anthropological articles were equally diverse. Russian criminologist Arkady Bronnikov interpreted the language of tattoos worn by inmates in Soviet-era prisons, and Scottish folklorist Simon Charsley traced the Victorian origins—and worldwide spread—of the white-iced wedding cake. American anthropologist June Nash chronicled the sometimes subversive and constantly transforming figure of Judas in Holy Week celebrations in the Mexican state of Chiapas. Analyzing the impact of modernity on traditional peoples, anthropologists Allyn Stearman and Daniel Stiles reported on the status of Yuqui hunters in lowland Bolivia and of Kenya's Gabbra nomads, respectively.

Three single-topic issues were published during the year. "Keeping Cool" (August 1993) focused on how animals and plants adapt to heat. Another special edition, to which Museum scientists made major contributions, marked the April 1994 opening of the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives. Richard H. Tedford, chairman and curator in the Department of Vertebrate Paleontology, served as scientific consultant and wrote two articles. Also contributing were Vice President and Dean of Science and Curator, Department of Vertebrate Paleontology, Michael J. Novacek; Malcolm McKenna, Frick Curator of Vertebrate Paleontology; and Bryn Mader, collections registrar in the Department of Mammalogy.

June's special issue, on evolution, commemorated the Museum's 125th anniversary. Eighteen scientists, including Stephen Jay Gould, Jeremy Jackson, Steve Jones, Nancy Knowlton, and John Maynard Smith, wrote of new findings and new theories on such topics as life's chemical origins, the evolution of bacteria and viruses, the relationships of parasites and hosts, and timetables of speciation.

Food columnist Raymond Sokolov
retired this year, having furnished more than 200 columns. Gail S. Cleere, Jared Diamond, Dr. Gould, Robert H. Mohlenbrock, and Roger Welsch continued as regular contributors.

*Natural History,* which is sent to all Museum members, extends the Museum’s reach and encourages support. Many Museum programs are enhanced by the ability to communicate with this broad audience. The magazine ran $6.5 million of advertising during the year, according to Publishers Information Bureau. Average paid circulation was approximately 508,000, as documented in the June report of the Audit Bureau of Circulation.

**Discovery Tours**

In 1953 the American Museum of Natural History became one of the first cultural institutions to offer educational travel programs to the public. Since then more than 8,000 people have participated in Discovery Tours around the world. During this past year 1,300 travelers on 40 different cruises and tours enjoyed some of the greatest wildlife areas, archaeological sites, and cultural centers in the world.

In keeping with the institutional goal of offering members greater insight into the worldwide scope of the Museum’s work, Discovery Tours programs are carefully developed to parallel the Museum’s research and exhibition activities. A team of Museum and guest lecturers—experts in anthropology, archaeology, astronomy, biodiversity, geology, zoology, and other fields—leads each travel
study program. Through their slide-illustrated lectures, informal discussions, and personal conversations, lecturers offer participants a unique perspective on each destination.

Among the first-time and more unusual programs offered this year were an expedition through the Northwest Passage aboard a Russian ice-breaker; a wildlife safari to the Skeleton Coast of Namibia, the lush Okavango Delta of Botswana, and Zimbabwe’s Victoria Falls; an ice-breaker voyage to the Antarctic Peninsula, the South Orkneys, South Georgia, and the Falkland Islands; and a steam-train journey to the great archaeological sites of Turkey. The past year also included many perennial favorites, including a cruise to remote Spitsbergen, 600 miles from the North Pole; a voyage along the protected lagoons of Baja, California, during whale migration season; a cruise through the Galápagos Islands to explore their indigenous life-forms; a cruise among the islands and channels of Alaska’s Inside Passage; a land-and-train trip to the national parks and ancient cities of northern India; and an expedition along the Amazon and Orinoco rivers in South America.

In an effort to address the diverse and special needs of families, Discovery Tours began offering specially designed family learning trips this past year. Children as well as adults enjoyed tours and excursions, lectures, outdoor activities, hands-on projects, and meetings with children from host countries. Our successful first year of family programs included a trip to some of Australia’s national parks and the Great Barrier Reef; an exploration of the Galápagos Islands and the Upper Amazon Basin; a holiday safari in the magnificent national parks of Kenya; and a Mediterranean cruise to the ancient archaeological sites and cities of Italy, the Greek Isles, and Turkey.

Over the last decade, Discovery Tours has expanded from twenty programs a year to more than forty, with trips to all seven continents, now for participants of all ages. Revenue from Discovery Tours reached approximately $1.4 million this year.

Membership

The Membership Office presented numerous public and members’ programs focusing on the Museum’s role in conservation and scientific exploration, including behind-the-scenes tours of the Departments of Mineral Sciences and Herpetology and Ichthyology. For these special tours, representatives from the scientific staff from each department demonstrated their laboratory work, displayed specimens collected in the field, and talked about the significance of their specialized studies to global ecology.

Ongoing field and laboratory studies were highlighted at evening lectures presented by individual curators. Members learned about Curator of Anthropology Craig Morris’s archaeological excavations in Peru and about the observations on the lives of Korean shamans by Laurel Kendall, also a curator of Anthropology. Ward Wheeler, assistant curator, Department of Invertebrates, described the function of the Museum’s Molecular Systematics Laboratory, and John Maisey, curator, Department of Vertebrate Paleontology, related his studies of Brazil’s fossil fishes to the living fossils that were on display in the exhibition Sharks! Fact and Fantasy.

Other distinguished speakers included anthropologist Erik Trinkaus, who described his theories about the connections between Neanderthals and modern humans, and wildlife biologist Ian Redmond, who recalled his work with Dian Fossey at Rwanda’s Karisoke Research Centre and updated members on the current status of gorilla conservation. Ranger Rick McIntyre discussed the controversial issue of reintroducing wolves to Yellowstone National Park and other areas from which wolf populations were eradicated by human beings, and environmentalist Jean-Michel Cousteau, founder of the Cousteau Society, examined the relationship between human beings and the marine world.

Members participated in walking tours that spotlighted New York City’s historical and natural treasures, including vestiges of the Revolutionary War still to be seen in lower Manhattan, remnants of nineteenth-century life surviving in Chelsea, architectural masterpieces designed by Stanford White, and the geological formations of Van Cortlandt Park.
Members also took day trips to discover the natural history of Block Island, to learn about Native American life at Long Island’s Shinnecock Reservation, and to pan for gold at Lancaster County’s Lost Dutchman Gemboree.

Family programs included a children’s chemistry workshop and a celebration of Chinese New Year with a shadow puppet performance. In conjunction with Sharks! Fact and Fantasy and the reopening of the fossil-mammal halls, members attended day-long Saturday events that combined visits to the exhibition halls with film presentations, scavenger hunts, and demonstrations by members of the scientific staff.

The number of participating members increased ten percent in the 1993–1994 fiscal year, to a total of 33,450. Revenue from the Museum’s Membership Program totaled $1.7 million.

Museum Shop

This was a significant year for the Museum Shop; an additional on-site shop was opened, sales topped $3 million (an increase of 11 percent over last year), and a sales record was set during the Museum festival Celebrate 125! The Rhythm of the World.

A 1,000-square-foot adult shop was constructed on the fourth floor, at the entrance to the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives. The merchandise emphasis is on early mammals and dinosaurs and the 125th anniversary of the Museum; items include caps, T-shirts, mugs, and tote bags. The shop also offers the official guide to the halls, Mammals and Their Extinct Relatives: A Guide to The Lila Acheson Wallace Wing.

The first-floor stockroom was renovated and a new stockroom was added on the third floor to support both the new shop on the fourth floor and the junior shop that is to be built next year. The third-floor shop, at the entrance to Gallery 3, was reconfigured to stand alone and can now be kept open twelve months a year, rather than only when there is an exhibition in Gallery 3.

The shop merchandise reflected the several exhibitions in Gallery 3 this year—The Dinosaurs of Jurassic Park; Antarctica; Sharks! Fact and Fantasy; and Royal Tombs of Sipán. For the last of these, the shop offered an extensive line of reproduction jewelry, ceramics, specially designed T-shirts, mugs, a poster, and an exhibition catalog. Dr. Morris’s book The Inka Empire and Its Andean Origins, coauthored with Adriana von Hagen, was a best-seller in the shop.

There were several significant additions to our offerings of books by staff: David Hurst Thomas, curator in the Department of Anthropology, is the U.S. editor of the series “Illustrated History of Humankind,” currently comprising three volumes. Also added to the shop is Native Americans, to which Dr. Thomas is a contributor. Other additions are Amphibians and Reptiles of Connecticut and Adjacent Regions, by Michael Klemens, special projects director, Center for Biodiversity and Conservation, and What Color is That Dinosaur?, written by Lowell Dingus, project director,
Fossil Halls—Library Restoration, and illustrated by Stephen Quinn, senior assistant manager, Department of Exhibition and Graphics.

**Micropaleontology Press**

The world’s primary source of reference data on the microscopic fossils used in oil exploration and in the analysis of climate change continued to expand the Ellis and Messina Catalogs of Micropaleontology with the 96th volume of *Foraminifera*, the 60th volume of *Ostracoda*, and the 11th volume of *Diatoms*. These were distributed to oil companies, geological surveys, and universities around the world. Also published during the year were volume 39 of the quarterly research journal *Micropaleontology*, and volume 22 of the monthly *Bibliography and Index of Micropaleontology*. Special papers on “Radiolaria of Giant and Subgiant Fields in Asia” and “Classification of Fossil and Living Dinofflagellates” broke new ground in areas of current research. The PalCat system, a universal standard computer package used by oil companies and universities to handle illustrated databases of microfossils, was upgraded to run in networks.

**Special Publications**

*The Inka Empire and its Andean Origins*, cowritten by Dr. Morris and Ms. von Hagen, provides a window into the Inka and the cultures that preceded them, examining the social organization, artistic accomplishment, technological advances, and agricultural methods of the people of this area. Published by Abbeville Press, Inc., in association with the Museum, the book showcases more than 100 photographs of objects from the Museum’s renowned collection of Inka artifacts.


Complementing the Museum’s new fossil-mammal halls, *Mammals and Their Extinct Relatives: A Guide to the Lila Acheson Wallace Wing* is an in-depth look at the Museum’s unparalleled collection of fossil-mammal skeletons. Dr. Dingus, Dr. Tedford, Curator of Vertebrate Paleontology Eugene Gaffney, Dr. McKenna, Dr. Novacek, and Vertebrate Paleontology Research Associate Eric Delson coauthored the guide, which provides information about each of the specimens on display, documenting the dazzling variety of mammalian life throughout its 200-million-year history.

Based on *Natural History* magazine’s popular “Natural Moment” feature, The 1995 *Natural Moment Wall Calendar*, which includes fourteen full-color photographs by the world’s leading nature photographers, was copublished with Macmillan Publishing Company. In addition, the Museum once again offered members and friends an intriguing array of books and other unique gift items through the “Members Choice” annual catalog as well as through advertisements in *Natural History* magazine.
Construction

This year, the Construction Department expanded its traditional role of maintaining and upgrading the Museum complex with a new program initiated to manage large construction projects in-house. While in the past such projects have customarily been managed by outside construction-management firms, this year the Department managed the complete renovation of the storage area for the Department of Anthropology's Asian ethnology collection. The project included the addition of a state-of-the-art environmental control system, a six-stop elevator, a 4,000-square-foot mezzanine, and a compact storage system. The renovation was completed under budget and ahead of schedule.

The Museum construction shops continued to work closely with the Department of Exhibition and Graphics in building some of the temporary exhibitions featured this past year. Installations in the Hayden Planetarium's Guggenheim Space Theater included both Star Trek® Exhibition: A Retrospective of the 60s and Man on the Moon: The Apollo Adventure. In Gallery 3, for Sharks! Fact and Fantasy, special lighting techniques and curved walls gave viewers the impression that they were underwater. In Royal Tombs of Sipán, inclined walls and a passageway in the shape of a Moche warrior figure created the sense of actually entering one of the tombs.

One of the Department's chief goals when renovating or creating a new office or storage area is to achieve the most efficient use of space. This past year's greatest design challenge was the renovation of the Office of Public Admissions. The design utilized every available square foot while opening up a window to the outside and minimizing interior partitions, resulting in a more spacious feeling. Other projects completed this year are the Department of Herpetology and Ichthyology's storage extension, the Museum Shop storage upgrade, and the Maintenance and Engineering Department offices.

The Construction Department continued to monitor ongoing rehabilitation projects funded in the New York City capital budget. These included the completion of structural and roofing restorations of Building 17 and the installation of new seating in the Planetarium's Sky Theater.

Maintenance and Engineering

The primary responsibility of the Maintenance and Engineering Department is to operate, maintain, and improve the mechanical systems in the Museum buildings.

Final designs for the air conditioning of all the exhibition halls on the first floor of the Museum were completed in mid-August. This $8.5 million project was recently reviewed and approved by the Landmarks Preservation and Art Commissions. Construction will begin in September 1995, with completion expected by March 1998.

Preventive-maintenance work orders for 80 percent of the heating, ventilation, and air-conditioning (HVAC) equipment are now being generated by facility-management computer software. This will further improve equipment performance.

This year, air-conditioning systems were installed in Gallery 3 and the adjacent gift shop, in the Hall of Mexico and Central America, the Hall of Human Biology and Evolution, the Department of Herpetology and Ichthyology's storage area, the supercomputer room, and the offices of Public Admissions and Maintenance and Engineering.

Other achievements include a significant upgrade in the 77th Street elevators, including new doors with state-of-the-art controls; completion of a comprehensive project to replace broken and obsolete valves throughout the Museum, including hot and cold water, steam and steam condensate, and standpipe and sprinkler systems; and an in-house sprinkler system. An in-house sprinkler system was installed in the Planetarium. A new chemical-storage room was constructed in the Department of Vertebrate Paleontology.

Naturemax Theater

The Naturemax Theater contains an IMAX® projection system, which produces images of unparalleled size, clarity, and brightness. This system enables the Museum to present its visi-
tors, including many school groups, with scientific information and images in an interesting and entertaining format.

This year 378,824 Museum visitors attend the Naturemax Theater. In February 1994, the Theater presented *Search for the Great Sharks* in conjunction with the exhibition *Sharks! Fact and Fantasy*. The combination proved to be very successful, with many of the Naturemax screenings selling out in advance. *Search for the Great Sharks* was produced and distributed by the Science Museum of Minnesota, St. Paul.

**General services**

*General Services* is composed of various service operations that support the Museum's mission. These include the Photography Studio, Telecommunications, the Printshop, Stationery Supplies, Copiers, Mail, and Shipping and Receiving. Work proceeded on the acquisition and implementation of the Central Reservations and Ticketing System, which will expedite ticketing for events and reservations for adult courses and school-group visits. These services, which are presently carried out in several different Museum departments, will be available to the public through a single telephone number.

The Photography Studio moved into its new space on the fourth floor during the fall. Despite the two-month shutdown required for the move, 1,000 photography work orders were completed during the fiscal year. Among these were a series of shoots for the guidebook *Expedition: Treasures from 125 Years of Discovery* and for a bus and bus-shelter advertising campaign for the newly opened *Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives*.

The postage operation is averaging about 3,000 pieces mailed per day. The Print Shop produced more than 400 jobs during the fiscal year, ranging from various types of stationery to scientific reprints to specimen labels. A color laser-copier was acquired in June. It will be connected to the Museum's computer network, enabling staff both to generate color output and to have slides and flat-copy digitized and entered into their computers. The Department continues to extend its several operations to new and expanding Museum functions.

*A scene from the IMAX® film Search for the Great Sharks.*
Development

Moved by the extraordinary legacy represented by the 125th anniversary of the American Museum of Natural History, and inspired by the leadership and vision of the Museum's new president, Ellen V. Futter, supporters contributed more than $19.2 million in 1993–1994. This figure, the largest single-year fund-raising total in the Museum's history, represents a 21 percent increase over 1993, buoyed by a 70 percent increase in gifts from individuals and a 44 percent increase in foundation grants as well as a 40 percent increase in support for a series of festive and memorable benefit events.

As of June 30, 1994, the Museum had raised over $143 million of its anticipated campaign goal of $250 million by the year 2000. This notable achievement is a vivid reminder that the Museum's commitments and vision for the future are shared by many members of the philanthropic community. This accomplishment also reflects a strong and successful public-private partnership between the Museum and the City of New York, including the Mayor's Office, the City Council, and the Office of the Manhattan Borough President.

Nothing better represents the collective spirit of the Museum's past, present, and future than the spectacular opening of the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives. The May 1994 opening marked the completion of the first phase of a project that will restore six major exhibition halls to their original architectural grandeur and bring to light the most comprehensive collection of fossil vertebrates ever assembled. The Wing is named in honor of Lila Acheson Wallace, cofounder of The Reader's Digest Association. Mrs. Wallace was a generous supporter of the Museum during her lifetime and in 1980 established the Lila Acheson Wallace/American Museum of Natural History Fund at the New York Community Trust.

Instrumental to the completion of the first phase of the fossil-halls renovation project was an exceptionally generous gift of $2.5 million from Paul and Irma Milstein. The Paul and Irma Milstein Hall of Advanced Mammals, named in honor of this important gift, will benefit Museum visitors for generations to come. In making this commitment, Mr. and Mrs. Milstein dedicated the hall to all the children of New York City and the world.

A $1.5 million challenge grant from The Kresge Foundation was a keystone of the successful fund-raising for the fossil-halls project. Other major supporters included Exxon Corporation, the City of New York, Miriam and Ira D. Wallach, Time-Warner, the William Randolph Hearst Foundation, Booth Ferris Foundation, Chemical Bank, Prospect Hill Foundation, Inc., J. P. Morgan & Co., Inc., The Bodman Foundation, and the Charles Hayden Foundation.

Throughout the year, a growing concern for understanding and preserving Earth's biological diversity continued to motivate Museum donors to make generous contributions aimed at addressing this urgent issue. A magnificent gift from Lewis B. and Dorothy Cullman established the Lewis B. and Dorothy Cullman Research Facility and Program for Systematics Studies. A collaborative effort between the Museum's Center for Biodiversity and Conservation and The New York Botanical Garden, the program was created by a combined $3 million in gifts to the two institutions from the Lewis B. and Dorothy Cullman Foundation, Inc. Using the most advanced research techniques, the work of the program will focus on molecular systematics and conservation genomics.

A growing scientific consensus predicts that millions of species of plants, animals, and microorganisms will face extinction over the next three decades. Yet all species, known and unknown, are linked in an ecological web that constitutes the support system for all forms of life, including that of human beings. This year, the Museum announced plans for a new comprehensive public education initiative focused on the magnitude of Earth's biological diversity and the consequences of its loss. At the heart of this initiative will be a major new hall devoted to biodiversity. Scheduled to open to the public in 1997–1998, this new hall will interpret biodiversity and its significance and illuminate the crucial role that science plays in our everyday lives. Lead gifts toward the development of this initiative,
including funding for the development of a national teacher-training program, were received from The Garden Club of America and from the Geraldine R. Dodge Foundation.

In 1993–1994, the Museum began the final stages of development for an innovative new public program entitled Expedition: Treasures from 125 Years of Discovery. This program will be dedicated to Mrs. Eileen P. Bernard through a generous gift made by her family. The Expedition program’s CD audioguide will employ the latest in interactive audio technology to provide visitors with information about every major exhibition hall and fifty of the Museum’s most intriguing treasures. Through the vision and generosity of Jack and Susan Rudin, the Museum has created a very special children’s component, called the “Jack and Susan Rudin Exploration Trails Program.” From a special school groups’ “base camp,” students and their teachers will launch their own tours from treasure to treasure and learn about the natural sciences and the cultures of the world. The Rudins’ extraordinary gift of $1 million will also support future endeavors in children’s education.

The Museum’s expanding program of on-site educational offerings and specialized outreach activities serves audiences of all ages and attracts a wide range of donors who share the Museum’s historic commitment to enhancing science literacy. Endowment gifts for education in 1993–1994 included $250,000 from the William...
Randolph Hearst Foundation (adding to its existing education endowment fund), and a contribution of $100,000 for creation of The Ruth W. and A. Morris Williams, Jr., Endowment Fund. Leading supporters of education and outreach efforts also included Lila Acheson Wallace–Reader's Digest Fund, the Samuel and May Rudin Foundation, Chase Manhattan Bank, and The Vidda Foundation.

Royal Tombs of Sipán, an exhibition of treasures from the richest tombs ever excavated in the Western Hemisphere, received a total of $250,000 in sponsorship support, including contributions from ASARCO Incorporated/Southern Perú Copper Corporation, Banco de Credito del Perú, Bear Stearns & Company, Aeroperú/FOPTUR, CS First Boston Corporation, and el diario/LA PRENSA. At a special opening reception, more than 1,300 guests were serenaded by folk musicians from the Peruvian town that was the site of the excavation. The national tour of Global Warming: Understanding the Forecast (which originated at the Museum in 1992–1993) continued to benefit from the $1.1 million, multiyear sponsorship from Lehman Brothers, Inc.

Great strides were made in 1993–1994 to enhance and improve the quality of the Museum environment and services to its visitors. New lighting, air conditioning, and heating systems and a lively and informative system of banners that helps visitors find their way through the Museum are all part of this initiative. Longtime Museum volunteer Joan Bull gave numerous significant gifts in support of these efforts. Visitors will benefit from a new air-conditioning system and from new information technology made possible by Mrs. Bull's thoughtful gifts, which reflect her concern for the comfort and quality of the Museum experience.

The opening of the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives provided a spectacular setting for the Museum's annual corporate dinner and for the presentation of the Distinguished Service to Science Award to Maurice R. Greenberg, Chairman and Chief Executive Officer of American International Group, Inc. The 1993–1994 dinner was attended by 85 guests and raised more than $1.2 million to support the educational and scientific programs of the new fossil halls. The enormous success of this event is attributable to the leadership of Dinner Chairmen Richard L. Gelb, Gary C. Wendt, and James D. Wolfensohn and to the gracious participation of Honorary Chairman Henry A. Kissinger.

The Museum's lively and successful fall gala, Celebrate This Island Earth, also highlighted the Museum's international research program and offered major sponsors the rare opportunity to join a biodiversity tour of Botswana and Zimbabwe. With generous underwriting from the Estée Lauder Companies, more than 600 gala guests celebrated, honoring the talent and dedication of Chairman Constance Spahn and Committee Cochairmen Tess Clairmont, Cathy Eckstein, Karen Lauder, Va Maugham, and Anne Sidamon-Eristoff. The event raised more than $650,000.


The Museum's annual Winter Dance was A Night in Casablanca. The skilled and experienced work of Dinner Chairmen Joshua A. and Tamara Leuchtenburg ensured a successful and spirited event, which raised funds for the Museum's multicultural education programs. In the spring, more than 400 guests attended the Eclipse Eve Gala, sponsored by Johnnie Walker Black Label. Cochaired by James G. Niven and Perri Peltz, the celebration raised funds to support public programs at the Hayden Planetarium.

In addition to support provided for events, special programs, and new initiatives, many individuals, foundations, corporations, and government agencies continue to provide generous support toward the general purposes of the Museum. Unrestricted gifts and grants are critical to the overall financial vitality of the Museum, while various types of Museum membership programs provide a strong foundation for future growth and for the development of durable and long-standing relationships.
The Junior Council of the American Museum of Natural History is a group of young philanthropists who support the Museum's efforts to preserve and protect Earth's biological and cultural diversity. Formed in 1992, the Junior Council has more than 200 members who, through their participation in exhibition previews, private screenings, and discussions with scientists and research teams, take advantage of unique opportunities for active social and educational involvement with the Museum.

Through the efforts of Trustee John S. Reed, chairman of Citicorp, the Corporate Membership Program grew by 35 percent in 1993–1994 and generated $1.2 million in funds to support core activities of the Museum. The Corporate Members Program is instrumental to strengthening partnerships with companies of all sizes. The Program provides a wide range of benefits to corporate partners, including free admission for employees of companies that join at the $10,000 level and above.

The Patrons Circle, a special program for Museum members at the $1,000 level and above, is designed to provide old and new friends with special opportunities to learn about the Museum's programs, exhibitions, and events as they unfold. Last year, Patrons Circle members were given a private tour of the fossil halls and a luncheon with Museum scientists, in addition to attending special exhibition preview receptions. Patrons played an important role in helping the Friends of the Museum membership program raise more than $1 million in 1993–1994. The Patrons Circle now has more than 300 members, representing a 30 percent increase in membership.

A new planned-giving program, launched in 1993–1994, offers donors a variety of beneficial options for contributing to the Museum, now and in the future. A mutual, lifelong interest in children and in science education inspired Jason and Susanna Berger to arrange and notify the Museum of a generous bequest that will create an endowed fund for children's education programs. A Charitable Remainder Annuity Trust from Evelyn Y. Davis will provide unrestricted support for core activities of the Museum. Other significant activity in the area of planned giving included a Charitable Remainder Unitrust from Roslyn E. Wallace and an inaugural contribution to the Museum's new Charitable Gift Annuity Program from Richard and Alice H. Proskauer. In addition, membership in the Natural History Society, an association dedicated to recognizing and thanking members and friends who have included the American Museum of Natural History in their estate plans, increased by 50 percent this past fiscal year.

Public Affairs

For the Department of Public Affairs, this was a year of strategic planning and development and of intensified communications efforts in the areas of media relations, marketing and promotion, and audience development. The result was a dramatic increase in media coverage, a fresh image and widened visibility in advertising, and a new visual identity for the Museum. The Department continued to work closely with local and national media, while at the same time cultivating associations with an increasing number of international publications and news organizations. A particular goal was to raise the Museum's profile as a preeminent science and research institution, and efforts in this area were well rewarded.

The Museum's springtime launch of its 125th-anniversary celebration—marked by the Science and Nature Survey, the opening of the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives, and the anniversary festival Celebrate 125! The Rhythm of the World—was a time of particularly intense media outreach. A press briefing held in March to familiarize the media with the Museum's anniversary plans was followed by a press conference in April to announce the preliminary results of the survey, which had been developed in conjunction with Louis Harris and Associates, with critical input from Museum scientists and the Department of Public Affairs, among others. The survey received widespread attention, with national and international newspapers, magazines, and television and radio stations reporting on its findings.

A number of press events were held in May in conjunction with the opening of the Lila Acheson Wallace Wing of
Mammals and Their Extinct Relatives. A day-long media preview featured a discussion of the new halls by a panel consisting of Ellen V. Futter, president; Michael J. Novacek, vice president and dean of science; Lowell Dingus, project director for the fossil halls; Ralph Appelbaum, exhibition designer; and Richard Tedford, chairman, Department of Vertebrate Paleontology. Other events included a special preview for members of the foreign press, held in conjunction with the Foreign Press Center, and a ribbon-cutting for the public opening.

Press coverage of the halls was extensive and varied and included local, national, and international publications as well as the electronic media.

The June 4 festival Celebrate 125! The Rhythm of the World drew some 100,000 people from all over the city, who enjoyed programs, activities, and performances both inside and outside the Museum. In order to draw a culturally diverse audience as possible, the festival was broadly promoted through a combination of media outreach, advertising, and targeted marketing.

In addition to reportage of anniversary-related events, media coverage throughout the year was substantial for such occasions as the announcement of extraordinary paleontological discoveries by Museum scientists participating in the Museum's ongoing expedition in the Gobi Desert, and such special exhibitions as Cuba: Nature of an Island, Antarctica, and Sharks! Fact and Fantasy. There was intense media interest in the special exhibition Royal Tombs of Sipán, which opened at the end of June and garnered positive reviews internationally. The Hayden Planetarium received extensive national print and television coverage for the special exhibition Star Trek® Exhibition: A Retrospective of the 60s, as well as for the annular solar eclipse viewing in May. The Museum was prominently featured in Discover magazine's November issue, which named "Ten Great Science Museums" and sported a diorama from the Hall of Human Biology and Evolution on the issue's cover.

The Museum's renowned dioramas were also the site for a ten-page fashion feature in Mirabella magazine's January issue, which included information about both the Museum and the dioramas.

In honor of the Museum's 125th anniversary, the Museum introduced a new visual identity, which was incorporated in printed materials and in a system of brightly colored banners placed strategically throughout the Museum's interior as directional guides for visitors. Exterior ban-

The promotional campaign announcing the opening of the Museum's Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives included this advertisement, which appeared on the sides of buses and in newspapers and magazines.

Rush Hour, 15 Million B.C.
Visit the new Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives.

Enter the world of the Museum's pavilion, exploring one of the most fascinating stories in the evolution of life—a study of great diversification and modern ecosystems. The new halls depict the past continents and spectacularly important array of fossil mammals over eons, featuring current and temporary exhibits that can be seen anywhere else in the world.

American Museum of Natural History
Central Park West at 79th Street, New York City—For information, call 212-769-5100
ners around the Museum’s perimeter heralded the anniversary, while larger ones on the Central Park West façade related to specific exhibitions.

In January, the Museum introduced a new advertising presence. A general campaign featured the theme of “Seven Continents on Central Park West,” along with striking photographs of the Museum’s 77th Street towers and of the elephants in the Akeley Hall of African Mammals. The marketing campaign for the Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives included a mix of print advertising in newspapers and magazines and outdoor advertising on buses and bus shelters in all five boroughs. These ads featured two eye-catching images from the halls: the seven-foot-tall skeleton of an extinct cave bear was featured on bus shelters, beckoning potential visitors to “Meet the Family,” and a fossilized bear-dog chasing an extinct antelopelike creature sped all over the city on the sides of buses.

Advertising for Royal Tombs of Sipán included both English- and Spanish-language components—the latter greatly strengthened as a result of el diario/LA PRENSA’s media sponsorship of the exhibition, which increased visibility for the show in both print and subway advertising. In addition, together with the Museum’s Department of Education and with the partial sponsorship of el diario/LA PRENSA, Public Affairs staff coordinated the production and presentation of a float featuring the exhibition, along with Peruvian musicians wearing colorful costumes, in the Puerto Rican Day parade, which was attended by roughly a million people.
The Department of Guest Services encourages a wide range of organizations to use the Museum for entertainment and meetings. Such use both brings new audiences to the Museum and procures an important source of revenue. That the Museum is especially appealing to corporations and other organizations in search of locations for their business and entertaining needs was illustrated by a significant increase in the use of Museum spaces by outside groups this year—particularly by the high degree of interest and excitement generated by the opening of the new Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives.

Kicking off the year were 3,000 members of the International Society on Thrombosis & Haemostasis, who spent an evening enjoying more than seven of the Museum's exhibition halls. The Warner Music Group invited 1,500 celebrities and music-industry professionals to cap off the Grammy Awards with a special post-Grammy celebration in the Theodore Roosevelt Memorial Hall, the Akeley Hall of African Mammals, the Hall of Asian Mammals, and the Whitney Hall of Oceanic Birds. The Boston-based EMC Corporation found the Hayden Planetarium to be the perfect setting for the launch of its new computer-storage products. Colgate-Palmolive chose the Museum as the site to honor their employees from around the globe. Continuing a company tradition of holding events at the Museum, Shearman & Sterling celebrated their 120th anniversary here. Also in keeping with tradition, American Brands, and Video Festival, and for Earth Day. Guest Services also worked closely with the Membership Department to ensure the success of their New York Revels program and of a special Peruvian dinner in the Garden Cafe, held to celebrate the opening of the exhibition Royal Tombs of Sipán. Guest Services continues to work closely with many departments to assist in marking the Museum's 125th-anniversary celebration. This support and teamwork contributed to the success of the festival Celebrate 125! The Rhythm of the World.

Other programs developed and implemented by Guest Services include the September Senior Citizens Month, which offers special programs and discounts for senior citizens; the Dinner-Theater package, designed to enhance Friday and Saturday evening visits; and the Group Tour package, which offers a full agenda of Museum activities.
The Volunteer Department provided both new initiatives and continuing support for the Museum, all with the aim of supplying talented volunteer assistance wherever needed; in 1993-1994 the needs were quite diverse.

The Volunteer Department manages the three Information Desks, where this year 135 volunteers worked more than 14,000 hours to provide assistance to visitors during all hours that the Museum is open. In a new program that is part of an effort to make the Museum more responsive to individual needs, Information Desk volunteers were trained to escort individuals or small groups to halls that the visitors had specifically come to see, but that were closed.

This recognition of the needs of special groups and individual interests was also reflected in the expansion of the Museum Highlights Tour program, in which 62 guides were active this year, offering a total of 1,693 Highlights Tours to 21,124 members of the public. In recognition of the 125th anniversary of the Museum, all Highlights Tours, which are given five times a day, seven days a week, have been redesigned and are to be called Anniversary Tours for the remainder of the anniversary celebration. Their focus is on Museum history, with a vivid recounting of the people, expeditions, and physical growth that have made the Museum famous. The Spotlight Tour program also continued to expand, as 295 Spotlight Tours were presented to 2,981 visitors. New subjects for tours included “Insects: Masters of the Universe,” “Mother Knows Best,” and “Father Nature.” The monthly sign-language program for the hearing impaired developed a new tour for each monthly presentation. The following subjects brought an increasingly large, extremely loyal audience to these much-needed and greatly appreciated tours for the hearing-impaired population: “Natural History of the Holidays,” “Antarctica: Land of Extremes,” “Journey of the Stars: A Tour of the Hayden Planetarium,” “Communication in Nature,” and “Halloween: The Tour.” Four volunteer lecturers presented off-site slide lectures at seventeen sites in the Tri-State area for adults unable to visit the Museum in person. Tour guides gave 9:00 A.M. tours to groups of Museum guards on several occasions; the response by both guides and guards was overwhelmingly positive and the Department hopes to expand this program in the upcoming year.

In response to the opening of the fourth-floor Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives, sixty-seven gallery explainers were recruited, trained, and scheduled to serve in the new galleries at all hours that they are open. These gallery explainers discuss all aspects of the restoration as well as the mammals on display and the use of cladistics as a method for imparting evolutionary information. Gallery explainers for the fossil-mammal halls have also worked at the many opening celebrations and members’ events associated with the new halls.

The 141 Education Department volunteers gave over 10,000 hours of work to this busy department. The teaching volunteers were trained in Eastern Woodlands Indians, Plains Indians, Jumbo and the Natural History of Elephants, the Barosaurus, Human Biology, Human Evolution, Mexico and Central America, Sharks! Fact and Fantasy, Mammals and Their Extinct Relatives, and Ocean Life. Other Education Department volunteers staffed classes, workshops, the Junior High School Calder Laboratory Programs, Camp-Ins, the Margaret Mead Film and Video Festival, the Discovery Room, the Alexander M. White Natural Science Center, and the Frederick H. Leonhardt People Center.

The Volunteer Department grew in size as well as in the range of services it provides. During the past fiscal year 801 people, ranging in age from sixteen to eighty-eight, volunteered more than 88,000 hours. The Department interviewed and accepted 194 new applicants. Some 15,000 hours were donated to the scientific departments, and 3,500 to the Library. The teaching tables for the Origami Holiday Tree and for other seasonal events were staffed by 108 volunteers. Such special projects as visitor surveys, Star Trek®Exhibition: A Retrospective of the 60s (in the Hayden Planetarium), membership events, and evening benefits brought volunteers into the Museum to do second jobs in addition to their regular assignments. Celebrate 125! The Rhythm of the World, a wonderful free event for the people of New York City on June 4, brought 72 volunteers, who worked long hours.
All volunteers were invited both to the reception in honor of the Museum's new president, Ellen V. Futter, and to the large May 11 staff party, held in celebration of the opening of the fourth floor.

In addition, the Volunteer Department sponsored a luncheon on June 1 to honor the following volunteers, who were chosen for special recognition by their supervising departments: Peggy Bird (Anthropology), Lenore Bloch (Discovery Tours), Melissa Chitwood (Entomology), Horace Colpitts (Vertebrate Paleontology), Joe DiCostanzo (Great Gull Island), Tom Doncourt (Education), Ruth Frelich (Public Affairs), Leslie Friedman (Special Publications), Bill Glover (Internal Auditor), Ilse Kaim (Invertebrates), Manny Levine (Ornithology), Sylvia Magnusson (Education), John Miley (General Services), Gillian Newell (Invertebrates), Jane Pelzman (Development), Liz Pon (Membership), Dorothy Rinkowsk (Information Desks), Dorothy Robertson (Micropaleontology Press), Ray Schiller (General Accounting), Eleanor Schwartz (Library), John Snook (Volunteer Office), Allyn Steiner (Hayden Planetarium), Odile Stern (Mineral Sciences), David Stipkovich (Photo Studio), Bernice Topp (Natural History magazine), Donna Walcavage (Exhibition), Geoff Walker (Herpetology and Ichthyology), Christian Waters (Museum Highlights Tours), and Cynthia Woodward (Mammalogy).
Substantive scientific advancement depends heavily on the communication of information. Publication is thus an integral part of scientific work. The Museum is recognized throughout the scientific community for its prodigious output of research papers and books by staff curators, research associates, postdoctoral fellows, students, curators emeriti, and scientific assistants. This body of work represents a formidable influence not only in the world of science, but in public education as well. The following works, listed by department, were published between July 1, 1993, and June 30, 1994, the period covered in this Annual Report.

Michael J. Novacek
Vice-President and Dean of Science

Authors shown in red type are on the staff of the American Museum of Natural History.

An asterisk appears beside the names of graduate students whose work is being sponsored by members of the staff of the Museum.

**S**cientific Publications

**Anthropology**

Carneiro, R. L.

Kendall, L.

Keyes, C.F., L. Kendall, and H. Hardacre

Kendall, L.

Morris, C.

Redmond, E.

Schwartz, J.H., V.T. Long, N.G. Cuong, L.T. Kha, and L. Tattersall

Spencer, C.

Tattersall, L.

Thomas, D.H.

Freed, S.A., and R.S. Freed

Freed, R.S., and S.A. Freed

Freedman, R.
ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS

Beolitz, P.

Burenhult, G., and D.H. Thomas (U.S. Editor)

Carneiro, R.L.

Freed, S.A.

Freed, S.A., and R.S. Freed

Schildkrout, E.

Spencer, C.

Tattersall, I.

Thomas, D.H.

Thomson, D.H., J. Miller, R. White, P. Nabokov, and P.J. Deloria

Weinstein, W.

Williamson, L.

ENTOMOLOGY

Allen, R.T.

Allan, R.T., and D.A. Walther

Baillet, Z., and K. Johnson

Bridge, D., C. Cunningham, B. Schierwater, R. DeSalle, and L.W. Buss

Brothers, D.J., and J.M. Carpenter

Brower, A.V.Z.

Brower, A.V.Z., and R. DeSalle

Cady, A., R. Leech, L. Sorkin, G. Stratton, and M. Caldwell

Carpenter, J.M.

Carpenter, J.M., J.E. Strassmann, S. Turollazzi, C.R. Hughes, C.R. Solis, and R. Cervo

Catley, K.M.* (Sponsor: N.I. Platnick)
SCIENTIFIC PUBLICATIONS


Le Crom, J.F., and K. Johnson

Llorente-Bousquets, J., H. Descimon, and K. Johnson

Miller, J.S., and L.D. Otte

Morrone, J.J.


Nixon, K.C., and J.M. Carpenter

Ovtsharenko, V.L., G. Levy, and N.I. Platnick

Platnick, N.I.


DeSalle, R., and C.B. Wilcox, J.M. Hill, and R. DeSalle


Wray, C., and R. DeSalle

Yeates, D.

Yeates, D., and B. Grimaldi
**ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS**

**Broder, A.V.Z.**

**DeSalle, R.**


**DeSalle, R., and W. Wheeler, and D. Grimaldi.**

**DeVries, P.J.**

**Grimaldi, D.**

**HERPETOLOGY AND ICHTHYLOGY**

**Cain, P., and P. Moller**

**Cain, P., W. Gerin, and P. Moller**

**Campbell, J.A., and D.B. Frost**


**Cole, C.L., and H.C. Dessauer**

**Daly, J.W., F. Gusevsky, C.W. Myers, M. Yotumashita, and T. Yamamoto**

**Desjardins, H.C., and C.L. Cole**

**Ford, I.S.**

**Frost, D.R., and R. Etheridge**

**Landman, R.E., and P. Moller**

**Lazara, K.J.**

**Lazara, K.J., and M.L. Smith**

**Moller, P., and B. Fritzsch**

**Myers, C.W., and J.E. Cadle**

**Myers, C.W., and J.W. Daly**

**Myers, C.W., E.E. Williams, and R.W. McDiarmid**

**Nelson, G.**


**Nelson, G., and C. Paterson**

**Northcott, R.G., and W.E. Demis**

**Raphael, B.L., M.W. Kleemans, P. Moehlman, E. Dierenfeld, and W.B. Karesh**

**Sherbrooke, W.C., and M.C. Castrucci, and M.E. Hadley**

**Stansky, M.L.J.**

**Stansky, M.L.J., and M.C. de Pinna**

**ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS**

**Alz, J.W.**

**Barney, C.C., and R.W. McDiarmid**


INVERTEBRATES

Scientific Publications


ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS

### Scientific Publications

**Mammalogy**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>Anderson, S.</td>
<td>Los mamiferos bolivianos: Notas de distribución y claves de identificación.</td>
<td>1993</td>
</tr>
</tbody>
</table>

**Eldredge, N.**


**Feldman, H.R.**


**Jacobs, D.K., and R. DeSalle**


**Jacobs, D.K., R. DeSalle, and C. Wedeen**


**Naylor, G., and L.F. Marcus**


**Newell, N.D.**


**Rohlf, F.J., and L.F. Marcus**


**Sage, W.E., III**


**Wray, C.G., N.H. Landman, and W.B. Saunders**

Honeycutt, R.L., and T.L. Yates  

Hopson, J.A., and J.R. Wake  

Hutterer, R.  


Hutterer, R., and W. von Koenigswald  

Hutterer, R., and P. Oromi  

Koopman, K.F.  


Lawrence, M.A.  

Luckett, W.P.  


MacPhee, R.D.E.  


MacPhee, R.D.E., and M.A. Hurlarville-Valent  

Mader, B.J.  

McFarlane, D.A., and R.D.E. MacPhee  

Musser, G.G.  

Pacheco, V., B.D. Patterson, J.L. Patton, L.H. Emmens, S. Solari, and C.F. Ascorra  

Patton, J.L., and M.F. Smith  

Rose, M.  


Ruedas, R.L., J. Cook, T.L. Yates, and J. Bickham  

Sarmiento, E.E.  

Simmons, N.B.  


Smith, M.F., and J.P. Patton  
**SCIENTIFIC PUBLICATIONS**

**Tobach, E.**


1994. ...Personal is political is personal is political... J. Soc. Issues 50:221-224.


**Voss, R.S.**

**Voss, R.S., and M.D. Carleton**

**Wible, J.R.**


**Zeller, U., J.R. Wible, and M. Elsner**

**ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS**

**Biknevicius, A.R.**

**Dagosto, M.**


**Darden, L.A., G.G. Musser, and P.W. Carney**

**Hopson, J.A., and J.R. Wible**

**Hutterer, R., T. Maddalenia, and O.M. Molina**

**Koopman, K.F.**

**Luckett, W.P.**


**MacPhee, R.D.E., and M.A. Ruraide-Vinent**

**White, J.L.**


**MINERAL SCIENCES**

**Dai, Y., G.E. Harlow, and A.R. McGhie**

**El-Shazly, A.K.**

**Harlow, G.E.**

**Johnson, C.A.**

**Kinzler, R.J., and T.L. Grove**


Webster, J.D., and W.A. Duffield 1994. Extreme halogen abundances in tinn-rich magma of the Taylor Creek Rhylotte, New Mexico. Econ. Geol. 89:134-144.


Kinzler, R.J. 1993. Major element constraints on the extent of re-equilibration between melts and residues within melting regimes beneath ocean ridges. EOS 74:283.


**Abstractions, Reviews, and Popular Publications**


**Ornithology**


Mayr, E., and W.J. Bock

Robertson, G.J., E.G. Cooch, D.B. Lank, R.F. Rockwell, and F. Cooke

Spoofford, W.R., and D. Amadon

Vuilleumier, F.


Williams, T.D., F. Cooke, E.G. Cooch, and R.F. Rockwell


ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS

Barrowclough, G.F.

Bates, J.M.


Cracraft, J.

Horne, J.M., and L.L. Short

Short, L.L.

Vuilleumier, F.


VEGETAL PALEONTOLOGY

Barghoorn, S.F., and R.H. Tedford

Baumel, J.J., and Witmer, L.M.


Chiappe, L.M.


Chinsamy, A., L.M. Chiappe, and P. Dodson

Clark, J.M., and R. Hernandez

Clark, J.M., A. Perle, and M. Norell

Gaffney, E.S., and J.W. Kelting


Maisey, J.G.


Moody, L.M., and J.G. Maisey

Norell, M.A., L.M. Chiappe, and J.M. Clark


Norell, M.A., J.M. Clark, and L.M. Chiappe

Noriega, J.L., and L.M. Chiappe

Perle, A., M.A. Norell, L.M. Chiappe, and J.M. Clark

Sues, H.-D., and D. Baird

Sues, H.-D., D. Baird, and P.E. Olson

Tedford, R.H., and S.F. Barghoorn
Tedford, R.H., L.G. Barnes, and C.E. Ray

Turnbull, W.D., E.L. Lundelius, Jr., and R.H. Tedford

Wahler, J.H.

Wang, X., and R.H. Tedford


ABSTRACTS, REVIEWS, AND POPULAR PUBLICATIONS

Baird, D.

Chiappe, L.M., M.A. Norell, J.M. Clark, and A. Perle

Delsen, E.

Dingus, L., R. Tedford, E.S. Gaffney, M.C. McKenna, M. Novacek, and E. Delson

Gaffney, E.S., P.A. Meylan, D. Brinkman, and J.H. Hutchison

Lamb, J.P. Jr., L.M. Chiappe, and P. Ericson

Maisey, J.G.


McKenna, M.C.


Norell, M.A., L.M. Chiappe, J.M. Clark, and A. Perle

Noriega, J.J., and L.M. Chiappe

Sanz, J.J., L.M. Chiappe, J.F. Bonaparte, and A. Buscalioni

Sanz, J.J., J.F. Bonaparte, L.M. Chiappe, and A. Buscalioni

LIBRARY SERVICES

Rhodes, B.

Root, N.J.
The Museum ended the year on a solid financial base, with an operating surplus of $0.5 million and endowment investments valued at $237.8 million.

Operating Financial Results
The Museum continued its focus on revenue generation and controlled expense growth. Total Revenue and Support grew to $61.2 million, an increase of $6.4 million, or 12%, over fiscal 1993. Contributing to this growth was the increased Distribution from Endowment Funds, which ended the year at $11.0 million, 11% over fiscal 1993. The distribution is 5% of a three-year rolling average of the market value of the Endowment Funds.

Funds for guardianship and maintenance from the City of New York increased by $0.5 million, or 9%, over last year due to collective bargaining settlements, as well as to some City-funded programs in Education, such as the Moveable Museum and the After-School Program.

Visitor contributions and admissions increased $0.7 million, or 18%, over fiscal 1993, due to the great success of both the Dinosaurs of Jurassic Park exhibit, the momentum of which carried over from its opening in the previous fiscal year, and the newly opened Lila Acheson Wallace Wing of Mammals and Their Extinct Relatives.

Auxiliary activities and benefits revenues ended the year 26% over fiscal 1993, with total net impact of $4.5 million, against $3.9 million last year. Natural History magazine increased royalty income and advertising sales to bring magazine revenues to $10.5 million, 8% over fiscal 1993. Magazine expenses increased by 6%, with resulting net income of $0.2 million in fiscal 1994.

Total expense growth of 11% over fiscal 1993 reflects both the continued investment in revenue-generating auxiliary activities and increased expenditures related to the opening of the Wallace Wing, to the Jurassic Park exhibit, and to the initiation of the Museum's 125th-anniversary celebration.

Revenue
- Natural History Magazine 17%
- Endowment & Related Funds 18%
- City of New York 14%
- Auxiliary & Benefits Activities 19%
- Gifts, Bequests, and Grants 16%
- Visitor Contributions 8%
- Publications and Other Revenue 5%
- Membership 3%

Expense
- Scientific Research, Education & Exhibition 33%
- Visitor Services 1%
- Natural History Magazine 17%
- Membership 1%
- Guardianship, Maintenance & Operating Costs 18%
- Administrative and General 12%
- Development & Public Affairs 6%
- Auxiliary Activities 12%
Plant Funds
The Museum continued to direct considerable resources into capital construction, equipment, and exhibition halls in fiscal 1994. The Wallace Wing was completed and opened in early May, while the two new dinosaur halls are nearing completion and will open in June 1995.

The Plant Fund had an ending fund balance of $36.9 million as of June 30, 1994, an increase of $2.0 million over fiscal 1993. Private gifts and capital appropriations from the City of New York totaled $7.6 million during the fiscal year. In addition, the City directly provided $0.8 million for capital maintenance projects that are not reflected in the financial statements.

Endowment Funds
The market value of endowment investments was $237.8 million at June 30, 1994, and had an investment return of nearly 3.5% in fiscal 1994. While this return was lower than what the Museum has experienced in prior years due to general market conditions, it still exceeded most market indices. Funds are invested by leading investment managers in diversified equity and fixed income securities and are overseen by the Museum's Investment Committee.

Hayden Planetarium
The Hayden Planetarium had an operating surplus before depreciation of $0.251 million on total revenue of $2.6 million in fiscal 1994. Net admission fees were $1.9 million, an increase of 38% over fiscal 1993. This significant increase is due to the popularity of the temporary exhibition Star Trek®: A Retrospective of the 60s and the sky show Orion Rendezvous: A Star Trek® Voyage of Discovery. Total assets of the Planetarium were $3.2 million, and fund balances on a cost basis were $1.0 million as of June 30, 1994.

Charles H. Mott
Treasurer
**Museum Financial Statements**

**Balance Sheets as of June 30, 1994 and 1993**

<table>
<thead>
<tr>
<th>Assets:</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$ 381,889</td>
<td>$ 1,453,373</td>
</tr>
<tr>
<td>Receivable for securities sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accrued interest and dividends receivable</td>
<td>2,824</td>
<td></td>
</tr>
<tr>
<td>Accounts receivable, less allowance for doubtful accounts of $309,032 and $274,565, respectively</td>
<td>2,264,382</td>
<td>2,155,027</td>
</tr>
<tr>
<td>Due from City of New York – Note 2</td>
<td></td>
<td></td>
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<tr>
<td>Investments – Notes 3 &amp; 7</td>
<td>3,577,661</td>
<td>4,762,562</td>
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<td>Interfund receivable/(payable) – Note 4</td>
<td>8,994,850</td>
<td>7,177,695</td>
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<td>Merchandise and paper inventories – Note 5</td>
<td>1,090,295</td>
<td>983,519</td>
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<tr>
<td>Planetarium Authority Bonds – Note 6</td>
<td>425,000</td>
<td>425,000</td>
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<tr>
<td>Prepaid expenses and other assets</td>
<td>1,549,896</td>
<td>2,084,863</td>
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<tr>
<td>Deferred bond issuance costs, net – Note 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant and equipment, less accumulated depreciation – Note 8</td>
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<td></td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$18,286,797</strong></td>
<td><strong>$19,042,039</strong></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Liabilities and Fund Balances:</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts payable and accrued expenses</td>
<td>$ 8,220,592</td>
<td>$ 4,564,156</td>
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<tr>
<td>Accrued interest payable</td>
<td></td>
<td></td>
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<tr>
<td>Accrued employee benefit costs</td>
<td>4,452,789</td>
<td>4,179,735</td>
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<tr>
<td>Payable for securities purchased</td>
<td></td>
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<tr>
<td>Unearned membership income</td>
<td>6,964,633</td>
<td>7,228,297</td>
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<td>Loan from Trust for Cultural Resources – Note 7</td>
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<td></td>
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<tr>
<td>Fund Balances – Note 9</td>
<td>(1,351,217)</td>
<td>3,074,851</td>
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<tr>
<td><strong>Total Liabilities and Fund Balances</strong></td>
<td><strong>$18,286,797</strong></td>
<td><strong>$19,042,039</strong></td>
</tr>
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The accompanying notes are an integral part of these financial statements.
<table>
<thead>
<tr>
<th>Plant Fund</th>
<th>Endowment Funds</th>
<th>Total</th>
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<tr>
<td>$65,771</td>
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<td>2,589,362</td>
<td>3,924,336</td>
<td>2,589,362</td>
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<td>$5,587</td>
<td>134,139</td>
<td>2,264,382</td>
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<td>923,494</td>
<td>2,566,843</td>
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<td>16,268,500</td>
<td>23,965,847</td>
<td>216,131,695</td>
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<td>2,010,679</td>
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</tr>
<tr>
<td>$92,442,379</td>
<td>$87,969,992</td>
<td>$209,198,316</td>
</tr>
<tr>
<td>$308,444,033</td>
<td>$319,927,492</td>
<td>$319,927,492</td>
</tr>
</tbody>
</table>

| $1,450,809 | $2,619,466     | $207,183 | $117,458 |
| 393,315    | 455,552        | 4,493,269 | 4,209,741 |
| 40,480     | 30,006         | 6,924,429 | 11,486,745 |
|           |               | 6,924,429 | 11,486,745 |
|           |               | 6,964,633 | 7,223,297 |
| 53,695,000 | 50,000,000     | 53,695,000 | 50,000,000 |
| 36,862,775 | 34,864,968     | 202,066,704 | 189,827,799 |
| $92,442,379 | $87,969,992    | $209,198,316 | $201,432,002 |
| $308,444,033 | $319,927,492  | $319,927,492 | $308,444,033 |
STATMENTS OF CHANGES IN FUND BALANCES
FOR THE YEARS ENDED JUNE 30, 1994 AND 1993

<table>
<thead>
<tr>
<th>Operating Funds</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balances, Beginning of Year</td>
<td>$3,074,851</td>
<td>$1,090,948</td>
</tr>
<tr>
<td><strong>Additions:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gifts, bequests and grants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital appropriation from the City of New York – Note 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions to deferred giving programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest and dividend income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net gain on sale of investments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excess of revenue and support over expenses</td>
<td>497,430</td>
<td>10,787</td>
</tr>
<tr>
<td><strong>Total Additions</strong></td>
<td>497,430</td>
<td>10,787</td>
</tr>
<tr>
<td><strong>Deductions:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5% Distribution to Operating Funds – Note 10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Administrative and custodial expense</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest expense (Not capitalized)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Deductions</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Interfund Transfers:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding of prior years' deficits – Note 4</td>
<td>2,527,949</td>
<td></td>
</tr>
<tr>
<td>Transfers due to capitalization and other</td>
<td>(4,923,498)</td>
<td>(554,833)</td>
</tr>
<tr>
<td><strong>Total Transfers</strong></td>
<td>(4,923,498)</td>
<td>1,973,116</td>
</tr>
<tr>
<td><strong>Extraordinary Item:</strong> Loss on Extinguishment of Debt – Note 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balances, End of Year</td>
<td>($1,351,217)</td>
<td>$3,074,851</td>
</tr>
</tbody>
</table>

The accompanying notes are an integral part of these financial statements.
<table>
<thead>
<tr>
<th>Year</th>
<th>Plant Fund</th>
<th>Endowment Funds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$34,864,968</td>
<td>$189,827,799</td>
<td>$227,767,618</td>
</tr>
<tr>
<td>1994</td>
<td>4,067,713</td>
<td>989,572</td>
<td>5,057,285</td>
</tr>
<tr>
<td></td>
<td>3,560,775</td>
<td>67,250</td>
<td>3,560,775</td>
</tr>
<tr>
<td></td>
<td>57,575</td>
<td>10,694,160</td>
<td>10,694,160</td>
</tr>
<tr>
<td></td>
<td>10,337,984</td>
<td>16,065,782</td>
<td>16,065,782</td>
</tr>
<tr>
<td></td>
<td></td>
<td>497,430</td>
<td>10,787</td>
</tr>
<tr>
<td>1993</td>
<td>7,628,488</td>
<td>22,088,966</td>
<td>30,214,884</td>
</tr>
<tr>
<td></td>
<td>5,148,195</td>
<td>10,958,904</td>
<td>10,958,904</td>
</tr>
<tr>
<td></td>
<td>10,958,904</td>
<td>9,873,600</td>
<td>9,873,600</td>
</tr>
<tr>
<td></td>
<td>418,949</td>
<td>902,908</td>
<td>1,321,857</td>
</tr>
<tr>
<td></td>
<td>580,637</td>
<td>947,692</td>
<td>1,528,337</td>
</tr>
<tr>
<td></td>
<td>3,480,486</td>
<td>138,035</td>
<td>138,035</td>
</tr>
<tr>
<td></td>
<td>2,924,352</td>
<td>10,134,814</td>
<td>10,134,814</td>
</tr>
<tr>
<td></td>
<td>4,480,072</td>
<td>11,861,812</td>
<td>16,341,884</td>
</tr>
<tr>
<td></td>
<td>3,275,197</td>
<td>10,821,292</td>
<td>14,096,489</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2,527,949)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1994</td>
<td>2,911,747</td>
<td>2,011,751</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>996,530</td>
<td>(441,697)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2,911,747</td>
<td>2,011,751</td>
<td>(2,969,646)</td>
</tr>
<tr>
<td></td>
<td>996,530</td>
<td>(2,969,646)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(4,062,356)</td>
<td></td>
<td>(4,062,356)</td>
</tr>
<tr>
<td>1993</td>
<td>$36,862,775</td>
<td>$202,066,704</td>
<td>$237,578,262</td>
</tr>
<tr>
<td></td>
<td>$34,864,968</td>
<td>$189,827,799</td>
<td>$227,767,618</td>
</tr>
</tbody>
</table>
MUSEUM FINANCIAL STATEMENTS

STATEMENTS OF REVENUE, SUPPORT AND EXPENSES OF OPERATING FUNDS
FOR THE YEARS ENDED JUNE 30, 1994 AND 1993

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue and Support:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution from Endowment Funds – Note 10</td>
<td>$10,958,904</td>
<td>$9,873,600</td>
</tr>
<tr>
<td>Gifts, bequests and grants</td>
<td>9,894,834</td>
<td>9,958,302</td>
</tr>
<tr>
<td>Appropriation from the City of New York:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funds for guardianship and maintenance</td>
<td>5,982,625</td>
<td>5,506,787</td>
</tr>
<tr>
<td>Value of energy services and contribution to pension costs – Note 11</td>
<td>2,640,076</td>
<td>2,320,364</td>
</tr>
<tr>
<td>Visitors' contributions and admissions</td>
<td>4,828,150</td>
<td>4,079,263</td>
</tr>
<tr>
<td>Membership</td>
<td>1,585,019</td>
<td>1,396,359</td>
</tr>
<tr>
<td>Auxiliary activities and benefits – Note 12</td>
<td>11,825,877</td>
<td>9,354,765</td>
</tr>
<tr>
<td>Publications and other revenue</td>
<td>2,949,049</td>
<td>2,555,994</td>
</tr>
<tr>
<td><strong>Revenue and Support before Magazine</strong></td>
<td><strong>50,664,334</strong></td>
<td><strong>45,045,434</strong></td>
</tr>
<tr>
<td>Natural History magazine</td>
<td>10,532,995</td>
<td>9,730,597</td>
</tr>
<tr>
<td><strong>Total Revenue and Support</strong></td>
<td><strong>61,197,329</strong></td>
<td><strong>54,776,031</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Expenses:</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific research</td>
<td>14,646,729</td>
<td>14,439,769</td>
</tr>
<tr>
<td>Education</td>
<td>2,021,730</td>
<td>1,512,169</td>
</tr>
<tr>
<td>Exhibition</td>
<td>2,982,760</td>
<td>2,642,110</td>
</tr>
<tr>
<td>Guardianship, maintenance and operating costs – Note 11</td>
<td>11,114,133</td>
<td>10,372,216</td>
</tr>
<tr>
<td>General and administrative</td>
<td>7,013,835</td>
<td>5,933,898</td>
</tr>
<tr>
<td>Development and public affairs</td>
<td>3,470,527</td>
<td>2,978,598</td>
</tr>
<tr>
<td>Membership</td>
<td>910,439</td>
<td>847,034</td>
</tr>
<tr>
<td>Visitor services</td>
<td>845,571</td>
<td>760,695</td>
</tr>
<tr>
<td>Auxiliary activities and benefits – Note 12</td>
<td>7,344,461</td>
<td>5,460,217</td>
</tr>
<tr>
<td><strong>Total Expenses before Magazine</strong></td>
<td><strong>50,350,185</strong></td>
<td><strong>44,966,706</strong></td>
</tr>
<tr>
<td>Natural History magazine</td>
<td>10,349,654</td>
<td>9,788,538</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td><strong>60,699,839</strong></td>
<td><strong>54,755,244</strong></td>
</tr>
<tr>
<td><strong>Excess of Revenue and Support over Expenses</strong></td>
<td><strong>$ 497,430</strong></td>
<td><strong>$ 10,787</strong></td>
</tr>
</tbody>
</table>

The accompanying notes are an integral part of these financial statements.
Notes to Financial Statements

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:
Fund Accounting: The accounts of the American Museum of Natural History ("the Museum") are maintained in accordance with the principles of fund accounting in order to abide by the limitations and restrictions placed on the use of the resources available to the Museum. Revenue received and expenses incurred for specified purposes are classified for accounting and reporting purposes into individual funds for which separate accounts are maintained. However, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups. The assets, liabilities and fund balances of the Museum are reported in fund groups as follows:

Operating Funds, which consist of unrestricted and restricted funds, represent funds available for support of the Museum's operations. Restricted funds are restricted by donors for particular operating purposes such as specific research projects, acquisitions or expeditions.

Plant Fund represents resources restricted for plant acquisitions and funds expended for plant. Operating funds used for plant acquisitions are accounted for as transfers to the Plant Fund.

Endowment Funds include permanent endowment and quasi-endowment funds. Permanent endowment funds are funds subject to the restrictions of gift instruments requiring that the original principal be invested in perpetuity and only the income be used for unrestricted or restricted purposes. Quasi-endowment funds represent monies transferred to Endowment by the Museum's Board of Trustees ("Board"), for either unrestricted or restricted purposes.

Cash: The Museum deposits cash with large, well-known financial institutions. At times such deposits may be in excess of the Federal Deposit Insurance Corporation limits.

Investments: Investments are carried at cost or, if acquired by gift, at fair value at date of acquisition. Purchases and sales of securities are reflected on a trade-date basis. Realized gains and losses on sales of securities are based on average cost. Interest and dividend income on Endowment Funds is distributed to Operating Funds based on a formula adopted by the Board as described in Note 10.

Merchandise and Paper Inventories: Inventories are stated at the lower of cost (first-in, first-out method) or market.

Plant and Equipment: Plant and equipment are stated at cost, with depreciation calculated on a straight-line basis over the estimated useful lives of the assets. The land and building occupied by the Museum are owned by the City of New York ("the City") and are not reflected in the financial statements.

Collections: In conformity with accounting policies generally followed by museums, the value of collections and other holdings of the Museum is not included in the balance sheets.

Pledges: Pledges are not reflected in the financial statements until they are paid.

Membership: Membership income is recognized ratably over the membership term, which ranges from one to three years.

Future Changes: In June 1993, the Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards No. 116, "Accounting for Contributions Received and Contributions Made," which significantly changes the methods by which organizations account for contributions. This statement mandates that contributions received, including unconditional promises to give (pledges), are recognized as revenues at their fair values in the period received. As of June 30, 1994, gross outstanding pledges totalled approximately $57,000,000, exclusive of City commitments, maturing over the next five years. No estimate has been made of the collectability of these pledges.

At the same time, FASB issued Statement of Financial Accounting Standards No. 117, "Financial Statements of Not-for-Profit Organizations." The implementation of this standard will require the Museum, among other things, to restate total fund balances into three categories: unrestricted net assets, temporarily restricted net assets and permanently restricted net assets — and to report the net change in each of the three classes of net assets as well as the change in total net assets in a statement of activity. In addition, the Museum will be required to report the change in its cash and cash equivalents in a statement of cash flows.

The Museum will be required to comply with FASB No. 116 and No. 117 no later than the fiscal year ending June 30, 1996. The impact of adopting these statements has not been determined at this time.

2. DUE FROM THE CITY OF NEW YORK:
The City has traditionally appropriated funds for the renovation, improvement and alterations of the City-owned buildings occupied by the Museum. These funds are not reflected in the financial statements since they do not flow through the Museum's books. Funds expended by the City for these capital projects in fiscal 1994 and 1995 amount to $854,499 and $3,873,187, respectively.

In addition, the Museum has entered into various pass-through contracts with the City for other capital projects. Under a pass-through contract, the Museum is responsible for managing the project and paying all costs. The City, in turn, is responsible for reimbursing the Museum for costs incurred up to the stated amount in the contracts. The amounts funded by the City are recorded as revenues of the Plant Fund in the Statements of Changes in Fund Balances and amount to $3,566,775 and $3,147,331 in fiscal 1994 and 1995, respectively. Any unpaid amounts are reflected as receivables of the Plant Fund in the balance sheets and amounted to $2,500,945 and $282,494 as of June 30, 1994 and 1993, respectively. Since the Operating Funds have advanced these monies to the Plant Fund, the receivables are included in the interfund receivable (payable) between the Plant Fund and Operating Funds.

3. INVESTMENTS:
Cost and fair values of investments as of June 30 are as follows:

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost</td>
<td>Fair Value</td>
</tr>
<tr>
<td>Operating Funds</td>
<td>$3,577,951</td>
<td>$3,500,273</td>
</tr>
<tr>
<td>Plant Fund</td>
<td>16,266,000</td>
<td>17,707,816</td>
</tr>
<tr>
<td>Endowment Funds</td>
<td>218,131,695</td>
<td>257,833,059</td>
</tr>
<tr>
<td>Total Investments</td>
<td>$235,977,646</td>
<td>$259,132,248</td>
</tr>
</tbody>
</table>
The carrying amounts for short-term investments approximate fair values. The fair values for fixed income securities carried at cost are generally based upon quoted market prices. For certain fixed income securities for which market prices were not readily available, fair values were estimated using values obtained from independent pricing services. The fair values of common and preferred stocks are based on quoted market prices.

Investment managers retained by the Museum enter into foreign exchange contracts as a hedge against foreign investments in the portfolio. The Museum's investment managers do not engage in speculation. Market value gains and losses on the currency contracts are deferred and included in the measurement of the related foreign investment transactions. At June 30, 1994 and 1993, the Museum had contracts to sell foreign currencies with expected proceeds of $11,515,000 and $12,974,000, respectively, and a fair value of $11,975,000 and $12,422,000, respectively. These contracts have various maturities, not in excess of four months, following June 30. Fair value of foreign currency contracts is based on quoted market prices.

The Museum temporarily loans certain endowment fund securities to brokerage firms through its custodian bank. The Museum retains all rights of ownership to the securities loaned and, accordingly, receives all related investment income plus compensation for lending the securities. Under the terms of the lending agreement, the custodian has agreed to indemnify the Museum against any loss resulting from a borrower's failure to return securities. At June 30, 1994 and 1993, the book value of securities loaned amounted to approximately $17,673,000 and $16,487,000, respectively.

4. INTERFUND RECEIVABLE / PAYABLE:
In May 1990, the Board authorized a transfer of $8,100,000 of surplus unrestricted operating funds to the Endowment Fund to be invested by the endowment managers. This amount is reflected as a receivable from the Endowment Fund as of June 30, 1994 and 1993.

In fiscal 1993, the Board authorized the funding of prior years' unrestricted fund deficits amounting to $2,227,949 from the Endowment Fund. This transaction is included as an interfund transfer. Subsequently, it was decided to leave $2,227,949 invested in the Endowment Fund until needed for operations. Therefore, that amount is also reflected as a receivable from the Endowment Fund as of June 30, 1994 and 1993.

As of June 30, 1994 and 1993, the Operating Funds had other miscellaneous receivables from the Endowment Fund of $677,581 and $65,065, respectively.

As of June 30, 1994 and 1993, the Operating Funds had advanced $2,566,842 and $1,647,295, respectively, to the Plant Fund for capital expenditures which are reimbursable from the City. Accordingly, they are reflected as a receivable from the Plant Fund. At June 30, 1994 and 1993, there were miscellaneous payables and contributions residing in the Operating Funds due to the Plant Fund of $4,577,822 and $4,890,644 respectively, which are reflected as payables to the Plant Fund.

5. MERCHANDISE AND PAPER INVENTORIES:
Merchandise and paper inventories as of June 30 consist of:

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural History magazine paper</td>
<td>$188,688</td>
<td>$415,704</td>
</tr>
<tr>
<td>Museum Shop merchandise</td>
<td>901,657</td>
<td>567,725</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1,090,245</td>
<td>$483,519</td>
</tr>
</tbody>
</table>

6. PLANETARIUM AUTHORITY BONDS:
The Museum and the American Museum of Natural History Planetarium Authority ("Planetarium") are separate legal entities which share the same Board of Trustees and Officers. The Museum has an investment in bonds of the Planetarium at a cost of $425,000 ($270,000 principal amount), which are past due.

For each of the years ended June 30, 1994 and 1993, interest on these bonds (at 4 1/2%) of $25,650 was received and included in Operating Fund revenue.

The Planetarium Authority bonds have been determined by management to be approximately $400,000 and $390,000 as of June 30, 1994 and 1993, respectively, based on current market yields.

7. LOAN FROM TRUST FOR CULTURAL RESOURCES:
In May 1991, the Museum entered into a loan agreement with the Trust for Cultural Resources of the City of New York ("the Trust") primarily to provide long-term financing of the cost of the construction, renovation and equipping of sections of the Museum's facilities. The Trust issued $25,000,000 of Series 1991A Revenue Bonds ("Series 1991A Bonds") and $25,000,000 of Series 1991B Revenue Bonds ("Series 1991B Bonds") and loaned the proceeds to the Museum.

In December 1993 the Trust, at the request of the Museum, advance refunded $25,000,000 of the Series 1991A Bonds by issuing $26,305,000 of Series 1996A Revenue Refunding Bonds ("Series 1996A Bonds"). The proceeds of the new issue, net of certain issuance costs, were deposited into a Refunding Escrow Deposit Account with a trustee bank. The funds in the account, together with interest earnings thereon, will be used solely to refund and redeem the Series 1991A Bonds maturing on and after April 1, 2002. This transaction was treated as an in-substance defeasance; therefore, neither the refunded bonds nor the funds in the escrow account appear on the Museum's books. While the Museum expects to achieve debt service savings of approximately $2.1 million over the life of the bonds, it recognized an extraordinary loss of $4.1 million, primarily due to the issuance of $3.7 million in additional debt to refund the old bonds and the write-off of old bond issuance costs related thereto. Generally accepted accounting principles require recognition of the accounting loss in the period in which the bonds were refunded and do not allow recognition of future interest savings.

Concurrent with the issuance of the Series 1996A Bonds, the Museum entered into an interest rate swap agreement for the full amount of the Series 1996A Bonds with AIG Financial Products Corp. ("AIG"). The interest rate swap effectively converts the rate that the Museum pays on the new debt from a variable rate to a fixed rate of 4.7%. The fair value of the interest rate swap at June 30, 1994 was approximately $1 million dollars. This represents the cost the Museum would have incurred if it decided to terminate the agreement on that date.
Interest is payable on the Series 1991A Bonds semi-annually on April 1 and October 1. The terms of the Series 1993A and 1991B Bonds are divided into consecutive Interest Rate Periods selected by the Museum as set forth in the bond resolutions. Interest on the Series 1993A Bonds is payable semiannually on the first Wednesday in April and October; interest on the Series 1991B Bonds is payable monthly. Since inception through June 30, 1994, the interest rate has been a Weekly Interest Rate. The Museum may elect at any time to adjust all of the Series 1993A and/or the Series 1991B Bonds to an alternate Interest Rate Period, subject to the satisfaction of certain conditions specified in the bond resolutions, but no Series 1993A or Series 1991B Bond shall bear interest in excess of the Maximum Interest Rate as defined in the bond resolutions. The interest rate as of June 30, 1994 was 5.00%.

The Series 1991A and 1991B Bonds are redeemable by the Trust, at the direction of the Museum, at a price of 100 when the bonds are bearing interest at a Weekly Interest Rate, or a Bond Interest Term Rate and a price ranging from 100 to 102 when the bonds are bearing interest at a Long-Term Interest Rate, as these terms are defined in the bond resolutions.

While the bonds are not the debt of the Museum, the agreement obligates the Museum to make payments equal to the debt service and sinking fund requirements of the bonds, including any premium on redemption. At June 30, 1994, the Museum’s estimated interest payments under the loan agreement (with interest on the variable rate portion of the loan estimated at a rate of 4.7%) for each of the next five years are $2,555,000 in fiscal 1995 through fiscal 1997; $2,500,000 in fiscal 1998 and $2,440,000 in fiscal 1999. Actual interest payments for the years ended June 30, 1994 and 1993 amounted to $1,778,900 and $2,192,600, respectively. The principal and sinking fund payments for the next five years are scheduled to occur on April 1 as follows: $1,986,000 in 1995, $1,145,000 in 1996, and $1,260,000 in 1997.

The Internal Revenue Code places limitations on the amount of interest that can be earned on the proceeds of certain tax-exempt bonds. Interest earned in excess of these limitations must be rebated at the end of the fifth bond year to the U.S. Treasury. While the amount of the ultimate rebate, if any, at the end of five years, cannot be determined until that time, the loan agreement between the Trust and the Museum requires that the rebate be calculated annually and the amount due as of the calculation date be segregated in a separate Rebate Fund. As of June 30, 1994 and 1993, the rebate calculated by the Museum was $557,212 and $845,328, respectively. The rebate is reflected as a liability of the Plant Fund.

As of June 30, 1994 and 1993, unexpended loan proceeds, including earnings thereon, totalling $16,288,500 and $22,125,579, respectively, were invested in cash equivalents and U.S. Treasury Notes and were in the custody of a trustee bank. Of the unexpended proceeds as of June 30, 1994, $1,567,849 was held for the payment of debt service, $13,753,439 for construction expenditures and $557,212 was retained in the Rebate Fund.

Payment of principal and interest on the Series 1991A, 1991B and 1993A Bonds is insured under certain conditions by separate financial guaranty insurance policies issued by the Municipal Bond Investors Assurance Corporation (MBIA).

The Museum incurred loan issuance costs of $2,255,757 in connection with the Series 1991A and 1991B Bonds. The unamortized portion of those costs relating to the refunded bonds, amounting to $908,580, was written off and is included in the extraordinary loss. The balance of the old issuance costs and the issuance costs relating to the Series 1993A Bonds, amounting to $904,609, are being amortized over the various maturities of the bonds.

Pursuant to the loan agreement and an agreement with MBIA, the Museum is required, among other things, to maintain unrestricted assets, as defined in the bond resolution, with a market value of at least 12% of the Museum’s long-term debt. At June 30, 1994 and 1993, the Museum had unrestricted assets with a market value of 171% and 178%, respectively, of the Museum’s long-term debt.

The fair value of the Series 1991A Bonds is estimated by the Museum’s remarketing agent at approximately $2,461,700 and $27,390,000 at June 30, 1994 and 1993, respectively. The fair value of Series 1993A and 1991B Bonds approximates their carrying amount.

8. PLANT AND EQUIPMENT:

Plant and equipment as of June 30 consist of:

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibition halls</td>
<td>$33,226,623</td>
<td>$21,366,512</td>
</tr>
<tr>
<td>Leasehold improvements</td>
<td>26,955,351</td>
<td>26,382,405</td>
</tr>
<tr>
<td>Equipment, furniture and fixtures</td>
<td>9,061,289</td>
<td>7,935,220</td>
</tr>
<tr>
<td>Construction-in-progress</td>
<td>20,355,777</td>
<td>18,261,873</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>89,088,840</strong></td>
<td><strong>73,296,010</strong></td>
</tr>
<tr>
<td>Less: Accumulated depreciation</td>
<td>19,587,071</td>
<td>16,106,585</td>
</tr>
<tr>
<td><strong>Net investment in plant and equipment</strong></td>
<td><strong>$70,501,769</strong></td>
<td><strong>$57,189,425</strong></td>
</tr>
</tbody>
</table>

Interest expense, net of the interest earned on the invested proceeds of the loan from the Trust, has been capitalized and added to the cost of debt-financed projects. Of the total net interest capitalized as of June 30, 1994, $1,138,099 was allocated to construction—in-progress and $116,026 was allocated to completed projects and will be depreciated over the lives of the related assets. As of June 30, 1993, net capitalized interest of $1,035,061 was allocated to construction—in-progress and $501,577 was allocated to completed projects.
9. FUND BALANCES:
Included in Operating Fund balances are approximately $2,419,529 and $2,918,000 in fiscal 1994 and 1993, respectively, restricted by donors for specific purposes.

Endowment Fund balances consist of:

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent Endowment Funds, income available for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted purposes</td>
<td>$ 82,608,297</td>
<td>$ 78,496,499</td>
</tr>
<tr>
<td>Unrestricted purposes</td>
<td>24,133,629</td>
<td>23,997,004</td>
</tr>
<tr>
<td>Quasi-endowment (funds functioning as endowment), principal and income available for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted purposes</td>
<td>20,590,026</td>
<td>17,665,334</td>
</tr>
<tr>
<td>Unrestricted purposes</td>
<td>74,726,752</td>
<td>69,668,932</td>
</tr>
<tr>
<td>Total</td>
<td>$ 202,066,704</td>
<td>$ 189,827,709</td>
</tr>
</tbody>
</table>

10. DISTRIBUTION FROM ENDOWMENT FUNDS:
The policy adopted by the Board provides for distributions to unrestricted and restricted funds within the Operating Funds at five percent of the average of the market value of the Endowment Funds for the three preceding years. The distributions are allocated among funds on a unit basis, which reflects the ratio of the related funds invested in the pooled portfolio to the total market value.

The distributions were:

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted Funds</td>
<td>$ 7,786,636</td>
<td>$ 7,264,241</td>
</tr>
<tr>
<td>Restricted Funds</td>
<td>3,172,288</td>
<td>2,609,359</td>
</tr>
<tr>
<td>Total</td>
<td>$ 10,958,904</td>
<td>$ 9,873,600</td>
</tr>
</tbody>
</table>

11. GUARDIANSHIP, MAINTENANCE AND OPERATING COSTS:
The City supplies energy services to the Museum, the value of which amounted to $2,438,011 and $2,135,664 in fiscal 1994 and 1993, respectively. In addition, the City made payments directly to the Museum’s pension plan in fiscal 1994 and 1993, amounting to $202,065 and $184,700, respectively. The value of these donated services and payments is included in revenue and in guardianship, maintenance and operating costs.

12. AUXILIARY ACTIVITIES AND BENEFITS:
Revenue and expenses for auxiliary activities and benefits in fiscal 1994 and 1993 were:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Museum Shop</td>
<td>$ 3,111,262</td>
<td>$ 2,529,417</td>
<td>$ 2,807,641</td>
<td>$ 2,286,805</td>
</tr>
<tr>
<td>Discovery Tours</td>
<td>1,370,836</td>
<td>1,115,198</td>
<td>1,290,926</td>
<td>875,289</td>
</tr>
<tr>
<td>NatureMax</td>
<td>1,102,909</td>
<td>405,343</td>
<td>1,055,111</td>
<td>401,458</td>
</tr>
<tr>
<td>Benefits</td>
<td>2,171,762</td>
<td>827,482</td>
<td>1,798,287</td>
<td>493,249</td>
</tr>
<tr>
<td>Other</td>
<td>4,068,848</td>
<td>2,767,021</td>
<td>2,407,800</td>
<td>1,403,406</td>
</tr>
<tr>
<td>Total</td>
<td>$ 11,825,677</td>
<td>$ 7,344,461</td>
<td>$ 9,354,705</td>
<td>$ 5,460,217</td>
</tr>
</tbody>
</table>
13. PENSION PLAN:
The Museum participates in the Cultural Institution Retirement System Plan ("CIRS Plan") which consists of an employer-funded defined benefit plan and an employee contributory 401K savings plan. It is a multiemployer plan and the actuarial present value of vested and unvested accumulated plan benefits and net assets available for plan benefits is not determinable on an individual institution basis.

The Museum accrues and funds annually the normal cost for eligible employees participating in the CIRS Plan. To be eligible under this plan, employees must be over 21 and employed for a minimum of one year. Total pension costs for eligible employees, including Planetarium personnel, amounted to $880,452 and $836,898 in fiscal 1994 and 1993, respectively, exclusive of payments made directly by the City.

The Planetarium reimburses the Museum for actual payroll costs for its staff. It also reimburses the Museum for all employee benefit costs, including pension, which are calculated as a percentage of payroll and amounted to $235,465 and $198,772 in fiscal 1994 and 1993, respectively.

14. POSTRETIRED BENEFITS:
The Museum provides health insurance for all retired employees and life insurance for certain retired employees. Postretirement benefit costs are expensed when paid and totalled $691,027 and $710,778 in fiscal 1994 and 1993, respectively.

Museum employees are covered by one of two plans: a multiemployer plan offered by the City or an independent plan offered by the Museum. The multiemployer plan is not subject to the reporting requirements of Statement of Financial Accounting Standards No. 106, "Employers' Accounting for Postretirement Benefits Other Than Pensions," which requires a change in accounting to the accrual method for postretirement benefit costs. The Museum's plan is subject to the requirements of the statement but because the number of employees covered under the subject plan is under 500, compliance is postponed to fiscal years beginning after December 15, 1994. The impact of adopting this statement has not been estimated.

15. RELATED PARTY TRANSACTIONS:
The Museum provides certain services to the Planetarium, such as insurance, accounting and maintenance, for which the Planetarium was charged an aggregate amount of $213,405 and $203,535 in fiscal 1994 and 1993, respectively. The Museum also received $52,297 and $42,768 in fiscal 1994 and 1993, respectively, for visitors who entered the Museum from the Planetarium. As of June 30, 1994 and 1993, the Planetarium owed the Museum $0 and $153,814, respectively, for various charges which are included in accounts receivable on the balance sheets.

16. TAX STATUS:
The Museum is a not-for-profit organization exempt from corporate federal income tax under Section 501(c)(3) of the Internal Revenue Code.

17. RECLASSIFICATIONS:
Certain amounts in fiscal 1993 statements have been reclassified to conform to fiscal 1994 presentation.
Report of Independent Certified Public Accountants

TO THE BOARD OF TRUSTEES OF THE AMERICAN MUSEUM OF NATURAL HISTORY:

We have audited the accompanying balance sheets of the American Museum of Natural History as of June 30, 1994 and 1993, and the related statements of revenue, support and expenses of operating funds and statements of changes in fund balances for the years then ended. These financial statements are the responsibility of the Museum's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the American Museum of Natural History at June 30, 1994 and 1993, and the results of its operations and changes in its fund balances for the years then ended, in conformity with generally accepted accounting principles.

New York, New York
September 30, 1994
**BALANCE SHEETS AS OF JUNE 30, 1994 AND 1993**

**Assets:**

<table>
<thead>
<tr>
<th>Item</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$222,010</td>
<td>$133,173</td>
</tr>
<tr>
<td>Investments – Note 2</td>
<td>2,265,055</td>
<td>2,212,186</td>
</tr>
<tr>
<td>Accounts receivable and other assets</td>
<td>121,147</td>
<td>202,603</td>
</tr>
<tr>
<td>Planetarium shop inventory</td>
<td>50,494</td>
<td>54,707</td>
</tr>
<tr>
<td>Plant and equipment at cost:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building</td>
<td>1,019,210</td>
<td>1,019,210</td>
</tr>
<tr>
<td>Building improvements</td>
<td>1,656,715</td>
<td>1,613,130</td>
</tr>
<tr>
<td>Zeiss Planetarium instruments</td>
<td>221,928</td>
<td>221,928</td>
</tr>
<tr>
<td>Less: Accumulated depreciation</td>
<td>(2,345,073)</td>
<td>(2,239,009)</td>
</tr>
<tr>
<td>Net plant and equipment</td>
<td>552,780</td>
<td>615,259</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>$3,211,486</td>
<td>$3,217,928</td>
</tr>
</tbody>
</table>

**Liabilities, Contributed Capital and Fund Balances:**

<table>
<thead>
<tr>
<th>Liabilities</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounts payable and accrued expenses</td>
<td>$122,590</td>
<td>$313,543</td>
</tr>
<tr>
<td>Accrued employee benefit costs</td>
<td>220,904</td>
<td>181,399</td>
</tr>
<tr>
<td>4 1/2% Refunding Serial Revenue Bonds, past due – Note 3</td>
<td>570,000</td>
<td>570,000</td>
</tr>
<tr>
<td>Accrued interest, past due</td>
<td>315,450</td>
<td>315,450</td>
</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
<td>1,228,944</td>
<td>1,380,392</td>
</tr>
</tbody>
</table>

**Contributed Capital:**

<table>
<thead>
<tr>
<th>Item</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Hayden</td>
<td>156,869</td>
<td>156,869</td>
</tr>
<tr>
<td>Charles Hayden Foundation</td>
<td>429,455</td>
<td>429,455</td>
</tr>
<tr>
<td>The Perkin Fund</td>
<td>400,000</td>
<td>400,000</td>
</tr>
<tr>
<td><strong>Total Contributed Capital</strong></td>
<td>986,324</td>
<td>986,324</td>
</tr>
</tbody>
</table>

**Fund Balances – Note 4**

<table>
<thead>
<tr>
<th>Item</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Liabilities, Contributed Capital and Fund Balances</strong></td>
<td>$3,211,486</td>
<td>$3,217,928</td>
</tr>
</tbody>
</table>

The accompanying notes are an integral part of these financial statements.
## PLANETARIUM FINANCIAL STATEMENTS

### STATEMENTS OF ACTIVITY AND FUND BALANCES
FOR THE YEARS ENDED JUNE 30, 1994 AND 1993

<table>
<thead>
<tr>
<th>Revenue</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission fees, net</td>
<td>$1,883,693</td>
<td>$1,364,954</td>
</tr>
<tr>
<td>Planetarium shop sales</td>
<td>298,706</td>
<td>207,507</td>
</tr>
<tr>
<td>Special lectures and courses</td>
<td>31,572</td>
<td>37,885</td>
</tr>
<tr>
<td>Gifts, bequests and grants</td>
<td>79,181</td>
<td>5,000</td>
</tr>
<tr>
<td>Income from investments</td>
<td>167,987</td>
<td>168,929</td>
</tr>
<tr>
<td>Other revenue, net</td>
<td>107,903</td>
<td>145,271</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td><strong>2,568,842</strong></td>
<td><strong>1,929,546</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th>1994</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation, presentation and promotion</td>
<td>1,070,441</td>
<td>782,044</td>
</tr>
<tr>
<td>Operation and maintenance</td>
<td>380,084</td>
<td>324,244</td>
</tr>
<tr>
<td>General and administrative</td>
<td>305,328</td>
<td>186,311</td>
</tr>
<tr>
<td>Planetarium shop expenses</td>
<td>278,681</td>
<td>207,080</td>
</tr>
<tr>
<td>Special lectures and courses</td>
<td>31,821</td>
<td>35,568</td>
</tr>
<tr>
<td>Special purpose programs and projects</td>
<td>2,504</td>
<td>5,594</td>
</tr>
<tr>
<td>Laser program expenses</td>
<td>223,254</td>
<td>217,600</td>
</tr>
<tr>
<td>Interest on past due 4 1/2% Refunding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial Revenue Bonds</td>
<td>25,650</td>
<td>25,650</td>
</tr>
<tr>
<td><strong>Total Expenses Before Depreciation</strong></td>
<td><strong>2,317,773</strong></td>
<td><strong>1,784,091</strong></td>
</tr>
<tr>
<td><strong>Excess of Revenue Over Expenses Before Depreciation</strong></td>
<td><strong>251,069</strong></td>
<td><strong>145,455</strong></td>
</tr>
<tr>
<td>Depreciation expense</td>
<td>106,063</td>
<td>111,170</td>
</tr>
<tr>
<td><strong>Excess of Revenue Over Expenses</strong></td>
<td><strong>145,006</strong></td>
<td><strong>34,285</strong></td>
</tr>
<tr>
<td>Balances, beginning of year</td>
<td>851,212</td>
<td>816,927</td>
</tr>
<tr>
<td><strong>Balances, End of Year</strong></td>
<td><strong>$996,218</strong></td>
<td><strong>$851,212</strong></td>
</tr>
</tbody>
</table>

The accompanying notes are an integral part of these financial statements.
Notes to Financial Statements

1. Summary of Significant Accounting Policies:
   Fund Accounting: The accounts of the American Museum of Natural History Planetarium Authority ("the Planetarium") are maintained in accordance with the principles of fund accounting in order to abide by the limitations and restrictions placed on the use of the resources available to the Planetarium. Revenue received and expenses incurred for specified purposes are classified for accounting and financial reporting purposes into individual funds for which separate accounts are maintained. However, for reporting purposes in the accompanying financial statements, all funds have been combined.

   Cash: The Planetarium deposits cash with large, well-known financial institutions. At times such deposits may be in excess of the Federal Deposit Insurance Corporation limits.

   Investments: Investments are stated at cost, or if acquired by gift, at fair value at date of acquisition.

   Inventories: Inventories are stated at the lower of cost (first-in, first-out method) or market.

   Plant and Equipment: The land utilized by the Planetarium was donated by the City of New York ("the City"). In the event of sale or condemnation of the property including bonds, the real property reverts to the City. By June 30, 1994 and 1993, the building had been fully depreciated. Major building improvements and equipment purchases are capitalized at cost and depreciated by the straight-line method over their useful lives.

   Future Changes: In June 1993, the Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards No. 116 "Accounting for Contributions Received and Contributions Made," which significantly changes the methods by which organizations account for contributions. This statement mandates that contributions received, including unconditional promises to give (pledges), are recognized as revenues at their fair values in the period received. As of June 30, 1994 and 1993, the Planetarium had no pledges receivable.

   At the same time, FASB issued Statement of Financial Accounting Standards No. 117 "Financial Statements of Not-for-Profit Organizations." The implementation of this standard will require the Planetarium, among other things, to restate total fund balances into three categories - unrestricted net assets, temporarily restricted net assets and permanently restricted net assets and to report the net change in each of the three classes of net assets as well as the change in total net assets in a statement of activity.

   In addition, the Planetarium will be required to report the change in its cash and cash equivalents in a statement of cash flows. The Planetarium will be required to comply with FASB No. 116 and No. 117 no later than fiscal year ending June 30, 1996. The impact of adopting these statements has not been determined at this time.

2. Investments:
   Investments as of June 30, 1994 and 1993 consist of short-term investments and an interest in a fixed income mutual fund. The short-term investments were carried at a cost of $1,156,000 in both years, which approximates fair value. The interest in the fixed income mutual fund at June 30, 1994 and 1993 is carried at a cost of $1,115,055 and $1,062,186, respectively, with a fair value of $1,020,480 and $1,104,956, respectively. The fair value of the Planetarium's interest in the fund is based on the fair value of the fixed income securities in the fund, as determined by an independent pricing agency.

   The Planetarium is exposed to credit risk in the event of non-performance by the issuers of short-term investments and fixed income securities held by the Planetarium. However, the Planetarium does not anticipate such non-performance since it generally invests in financial instruments issued by entities with high credit ratings.

3. Revenue Bonds:
   The Planetarium's 4-1/2% Refunding Serial Revenue Bonds are owned by the American Museum of Natural History ("the Museum"). The Charles Hayden Foundation contributed $200,000 to the Museum toward the purchase of such bonds.

   Fair value of the Planetarium bonds has been determined by management to be approximately $490,000 and $290,000 at June 30, 1994 and 1993, respectively, based on current market yields.

4. Fund Balances:
   Included in fund balances is approximately $205,000 as of June 30, 1994 and 1993 restricted by donors for specific purposes.

5. Related Party Transactions:
   The Planetarium and the Museum are separate legal entities which share the same Board of Trustees and Officers.

   The Museum provides certain services, such as insurance, accounting and maintenance, to the Planetarium. The aggregate charges for these services in fiscal 1994 and 1993 were $213,405 and $213,535, respectively.

   The Planetarium reimburses the Museum for actual payroll costs for its staff. It also reimburses the Museum for all employee benefit costs, including pension, which are calculated as a percentage of payroll and amounted to $255,465 and $186,772 in fiscal 1994 and 1993, respectively. The Planetarium also paid the Museum $52,297 and $42,768 in fiscal 1994 and 1993, respectively, for visitors who entered the Museum from the Planetarium. As of June 30, 1994, the Planetarium owed the Museum $153,814 for various services. This amount is included in accounts payable and accrued expenses on the balance sheets for that year. No amounts were unpaid at June 30, 1994.

6. Tax Status:
   The Planetarium is a not-for-profit organization exempt from corporate federal income tax under Section 501(c)(3) of the Internal Revenue Code.
Report of Independent Certified Public Accountants

TO THE BOARD OF TRUSTEES OF THE AMERICAN MUSEUM OF NATURAL HISTORY
PLANETARIUM AUTHORITY:

We have audited the accompanying balance sheets of the American Museum of Natural History Planetarium Authority as of June 30, 1994 and 1993, and the related statements of activity and fund balances. These financial statements are the responsibility of the Planetarium’s management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the American Museum of Natural History Planetarium Authority at June 30, 1994 and 1993, and the results of its operations and changes in its fund balances for the years then ended, in conformity with generally accepted accounting principles.

Coopers & Lybrand L.L.P.

New York, New York
September 30, 1994
(as of June 30, 1994)

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Chairman of the  
Board of Trustees

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President

Frederick A. Klingenstein,  
Vice Chairman

Anne Sidamon-Eristoff,  
Vice Chairman and  
Chairman Elect

Henry G. Walter, Jr.,  
Vice Chairman

L.F. Boker Doyle,  
Secretary

Charles H. Mott,  
Treasurer

Robert G. Goelet,  
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L.F. Boker Doyle  
Nancy Fessenden  
Hughlyn F. Fierce  
Henry Clay Frick II  
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Richard Gilder  
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Earl G. Graves  
David A. Hamburg  
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Helene L. Kaplan  
Deborah C. Kessler  
Frederick A. Klingenstein  
David H. Koch  
Lansing Lamont  
Frank Y. Larkin  
Karen J. Lauder  
Frank G. Lyon  
Caroline Macomber  
Shirley M. Malcom  
Plato Malozemoff  
Norman S. Matthews  
William F. May  
Eugene R. McGrath  
Frank A. Metz, Jr.  
Edward H. Meyer  
Edwin H. Morgens  
Charles H. Mott  
R. William Murray  
Gerard Piel  
John S. Reed  
Frederick P. Rose  
Arthur Ross  
Charles A. Sanders  
Frederick Seitz  
Anne Sidamon-Eristoff  
Peter J. Solomon  
Constance Spahn  
Alfred R. Stern  
Carroll L. Wainwright, Jr.  
Henry G. Walter, Jr.  
Edward O. Wilson

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Rudolph W. Giuliani,  
Mayor of the City  
of New York

Ruth W. Messinger,  
President of the  
Borough of Manhattan

Alan G. Hevesi,  
Comptroller of the  
City of New York

Schuyler G. Chapin,  
Commissioner,  
Department  
of Cultural Affairs

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