A photograph showing a person's hand holding a fine needle, injecting a snake's head. The snake is surrounded by several white, oval-shaped eggs. The background is a laboratory setting with various equipment and containers.

**105<sup>th</sup>**

**Annual Report 73/74**

**The American Museum of Natural History**







105TH ANNUAL REPORT / JULY 1973, THROUGH JUNE 1974  
THE CITY OF NEW YORK

**THE  
AMERICAN  
MUSEUM  
OF  
NATURAL  
HISTORY**









## TABLE OF CONTENTS

Report of the President .....	4
Report of the Director .....	6
Review of the Year 1973-1974 .....	8
Science, Education and Exhibition .....	12
Department of Animal Behavior .....	14
Undergraduate Research Participation Program .....	14
Department of Anthropology .....	14
Department of Astronomy & The American Museum-Hayden Planetarium .....	15
Department of Entomology .....	17
Department of Herpetology .....	17
Department of Ichthyology .....	17
Department of Invertebrate Paleontology .....	19
Department of Living Invertebrates .....	19
Department of Mammalogy .....	20
Department of Mineralogy .....	21
Department of Ornithology .....	21
Department of Vertebrate Paleontology .....	22
Field Stations .....	
Archbold Biological Station .....	24
Great Gull Island .....	24
Kalbfleisch Field Research Station .....	26
Lerner Marine Laboratory .....	27
Southwestern Research Station .....	28
Department of Education .....	31
Department of Exhibition and Graphics .....	31
Library .....	32
Publications .....	33
Development and Communications .....	34
Administration .....	37
Attendance .....	39
Treasurer's Report .....	41
Financial Statements as of June 30, 1974 and 1973 .....	43
The American Museum of Natural History .....	43
The American Museum of Natural History Planetarium Authority .....	49
Board of Trustees .....	53
Officers .....	53
Management Board .....	53
Standing Committees .....	54
Special Advisory Committees .....	54
The Staff .....	55
Members Elected by the Board of Trustees .....	59
Corresponding Members .....	60
Contributors .....	61



**ONE-HUNDRED-AND-FIFTH ANNUAL REPORT OF THE PRESIDENT  
To the Trustees of The American Museum of Natural History  
and to the Municipal Authorities of the City of New York.**

A great museum is a many-splendored thing, a depository of incomparable collections that teach the history of the universe and the world and the creatures that live and have lived on Earth. These are the foundations of our distinction, and they provide the source material for our basic research as well as for our famous dioramas and other exhibitions. It is because of them that our huge and varied constituency comes here from all parts of the world. Many come as aspirants for advanced degrees, perhaps in ornithology, where the collection of bird skins is unrivaled anywhere, or entomology with its 14,000,000 insects, each impaled on its own personal pin and stored in cataloged steel drawers; there are eleven such departments concerned with the natural sciences. These students also have available to them the Museum's library, the finest natural history library in this country. Many priceless items in this collection are now housed in the air-conditioned Rare Book Room, which opened in November. It was made possible through generous gifts from The Bunbury Company, Mrs. Alfred Lee Loomis, Jr., and the Ogden Corporation, among others. The Stephen C. Clark Foundation granted funds for three years to restore and rebind these treasures.

Among our other constituents are daily visitors of all ages, intellectual capacities and interests. Some come to the Museum as art students, sketching in the Akeley Hall of African Mammals, or in five Indian Halls, or wherever their interest may lead them. Many visitors come from within a 25-mile radius of City Hall, and we have a particular responsibility to the residents of our own neighborhood; part of that responsibility is discharged delightfully every year at a community festival called West Side Day. The schools of the city and its environs send us large numbers of children with their teachers for formal education programs; Museum instructors, volunteer docents or interns teach or guide them. Many young people come just to experience moments of wonder, magic and beauty so often lacking in their lives. They have many exhibition halls at their disposal, and I believe visitors especially enjoy the new People Center and Alexander M. White Natural Science Center. Friends of the late Alexander M. White (who preceded me as President of the Museum) and his family have financed a most imaginative exhibit and nature area. In the Center, which opened in May, all exhibits are at the level of a child's eye and the biology of New York is shown even to the cracks in the sidewalks—where ants can be seen living their busy lives.

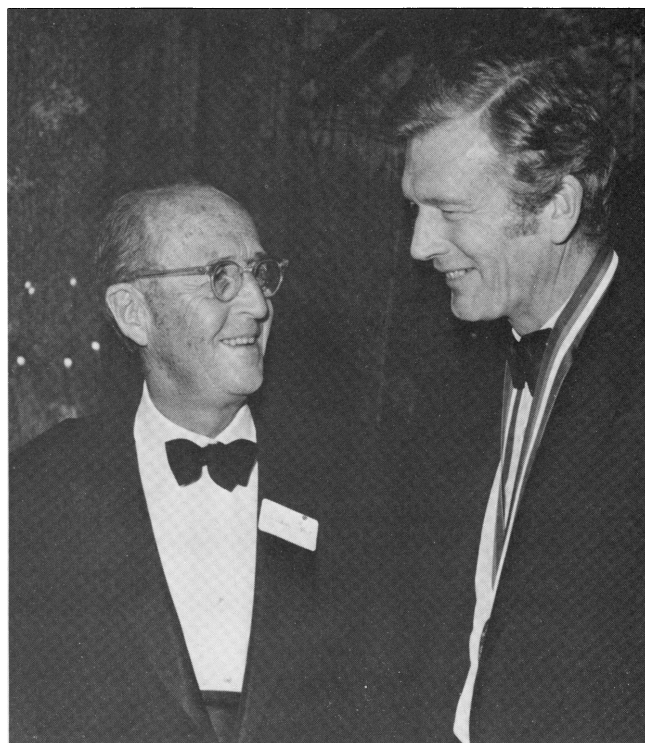
We have continued to develop and improve our facilities so that we can make visits easier and more rewarding. Working with the Museum architect, we are refining construction plans to eliminate bottlenecks in the flow of visitors through our halls and exhibition areas, to reduce noise, to have more places to sit down, and to improve our cafeteria service. Among important components of a developing master

plan are a visitor orientation center, a new science building and a new education building. Thus do great educational institutions such as this Museum move forward to take advantage of modern teaching tools and concepts in order to better serve their constituents.

During the year, the deaths of three men who served with great distinction as Trustees saddened the Museum family. Richard G. Croft, an honorary Trustee, who had been a member of the Board from 1958 to 1969, died on December 29, 1973. Lewis W. Douglas, an honorary Trustee who served actively from 1937 to 1951, died on March 8. W. Gurnee Dyer was Vice-President of the Museum at the time of his death on April 3 and also served as Chairman of the Education Committee. His contributions to the Museum—particularly to the anthropology and education programs—were made in many different ways and will be sorely missed.

The Trustees took great pleasure in awarding the Silver Medal of The American Museum of Natural History to Mr. John V. Lindsay, Mr. Cleveland E. Dodge and Mr. F. Trubee Davison.

In the past year the Museum's development activities were expanded under the direction of Vice-President David D. Ryus. With the help of three strong volunteer committees—the Men's Committee under Mr. Thomas McCance, Jr., the Women's Committee under Mrs. John S. Hilson, and the Corporate Committee under Trustee Howard L. Clark, we raised three-







quarters of a million dollars in annual gifts. In the area of corporate support, especially, we are making substantial gains, and the Trustees are particularly grateful to Mr. Clark, whose role will be assumed in the coming year by Trustee Thomas J. Watson, Jr. I would like also to express our thanks to Mr. McCance for his leadership of the Men's Committee. He turned his responsibility over to Mr. Daniel Ward Seitz, previously Vice-Chairman, on July 1. Mrs. John S. Hilson's able leadership of the Women's Committee continues into next year.

We ran several special development projects during the year and I would like to thank Dr. Margaret Mead, Curator Emeritus, for delivering a benefit lecture series; the Women's Committee, in particular, for the creation of a benefit auction evening; and our membership for their support in our new program of tours for members.

I find myself saying that nothing is impossible at The American Museum of Natural History. All you have to do is come here and you will find out that it is true.

Gardner D. Stout, *President*

Former Mayor John V. Lindsay received the Silver Medal of The American Museum of Natural History from Museum President Gardner D. Stout at a meeting of the Board of Trustees in November. Above, guests at a party that month were introduced to a llama; Mrs. Nathaniel R. Norton (center) was present with Mrs. Duncan Marshall (right), a member of the Women's Committee. On the left is Mr. W. Gurnee Dyer, Vice-President and staunch supporter of the Museum. Mr. Dyer died in early April, 1974.

## REPORT OF THE DIRECTOR

In the past several years, the Administration of the Museum, with the assistance of its scientific staff and with the assent of its Board of Trustees, has undertaken a series of steps designed to clarify and to strengthen the Museum's role as a scientific institution. Among these, on which I have reported before, were the appointment of a Deputy Director for Research, the adoption of a Statement on Science Policy, and the development and improvement of facilities for the storage and use of the Museum's vast collections in natural history.

These steps have placed on the highest level of museum administration an officer with prime responsibility for managing its scientific personnel and resources, and for stimulating the highest quality of service from them. They have established a rationale for the Museum's role in scientific research and have identified the relationships among its collections, its scientific staff, and its obligations and objectives as an institution. They have also recognized the great responsibility the Museum bears for maintaining its collections under conditions that will assure their preservation and their accessibility to the various communities they serve.

This year, there were adopted and promulgated two additional statements of policy and procedures that bear on the same objectives. They are: "Policy and Procedures Regulating the Acquisition and Disposition of Natural History Specimens," and "The Conditions of Employment, Service, and Responsibilities of the Professional Staff in Scientific and Educational Departments." Both of these new policy guidelines were developed cooperatively by the Administration, the scientific staff, and a joint committee of the staff and Trustees. And both were formally approved and adopted by the Board of Trustees.

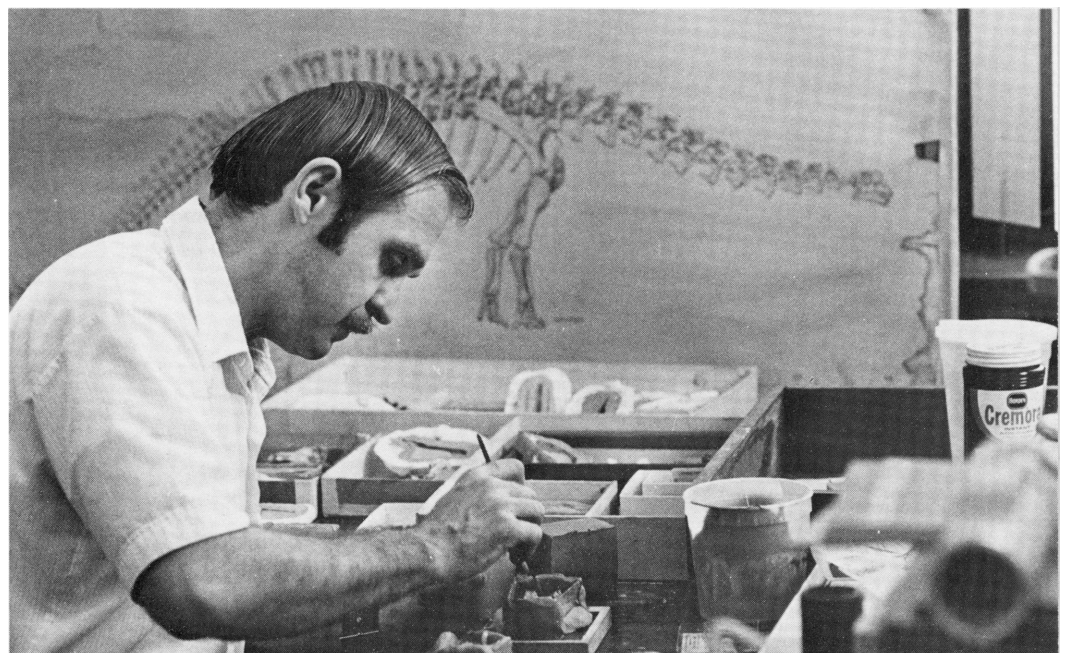
The policy statement governing the acquisition and disposition of collection specimens was formulated

in recognition of increasingly complex problems that have arisen in recent years. These problems include increasing governmental regulation and control over traffic in natural history materials of many kinds, and the threat of governmental regulation of museum practices in disposing of objects held in collections. The policy adopted by the Museum identifies the ethics and responsibilities that should guide its personnel, while at the same time it recognizes the need for practices that will allow the collections to be continually improved in quality and representation.

The policy statement governing the conditions of employment, service and responsibilities for curators covers a broad range of subjects. It represents, to some extent, a codification and organization of practices and traditions that have been in use for some time. But it also includes several major departures from the past. Among its more significant elements are a description of the specific duties and responsibilities of a curator; the establishment of uniform standards of performance and of uniform procedures whereby curators are to be evaluated; the identification of duties and responsibilities for the Council of the Scientific Staff, for a Committee on Appointments and Promotions and for the Chairmen and Chairwomen of the scientific departments; the introduction of a procedure for periodic review and rotation of the chair of each department; the terms of appointment, promotion and tenure for curators and the establishment of processes whereby these are to be effected.

The very broad and significant contributions to the Museum's work and purposes that are the responsibility of its curatorial staff make it essential that the Museum attract to, and keep in its employment, curators of the highest quality. A major objective of the steps described above, including the policy guidelines adopted this year, has been to establish an environment in which this will be encouraged. The

The Vertebrate Paleontology Department is now casting some of its unique fossils so that exact replicas can be made available to research scientists around the world. Here Mr. Ronald H. Brown casts small mammals in the Frick collection.





Museum owes its reputation, nationwide and world-wide, to its curators, for they have brought its great collections to it, they have produced the scholarly and productive research for which it is respected, and they have assured, through their authority, the Museum's unchallenged acceptance as teacher in the fields it represents.

Quality of service by a curator, especially one in this Museum, is extremely difficult to define. Certainly, we must expect from our curatorial staff contributions in all areas of work that are described in their conditions of employment: quality and productivity in research and in the promulgation of research results; service to the exhibition, educational, promotional and administrative programs of the Museum; service to the community of science and education broadly; and service in the popularization of science to the community at large. Not all curators, however, can or should contribute equally in each of these areas. But in one, the quality of their research and the publication thereof, we expect and are entitled to superior results. The curatorial positions available in the Museum are so limited in number, and the resources made available in support of research are so great, that we cannot afford to waste them.

Much of the responsibility for finding the quality we seek, for evaluating it, and for recognizing and rewarding it, must fall on the curators themselves. It is they, and their peers elsewhere, who must judge the significance and the relevance of their own research. Difficult as it is to define quality in research, it is fair to say that scientists in the field are in the best position to recognize it when it appears, to see the potential for achieving it in younger colleagues. The Museum has, we hope, established an environment in which the only criterion for success by a curator will be the quality of his or her work. And it has established and guaranteed a set of processes within

which this quality is to be measured. It has, by doing so, given to its curators a great degree of freedom. At the same time, it has placed on them a great responsibility.

It must be emphasized that the burden placed on the curatorial staff by these new policies will not be an easy one to shoulder. It will require wisdom, dedication, initiative and courage to carry out. The freedom it gives to the individual is not intended to make his position a sinecure within which to satisfy purely personal and narrow interests. The responsibility it demands is not easy to define and measure precisely. The exploration of nature that we wish to encourage in our research should go beyond the individual, beyond the project or research paper under consideration, to the broader implications for science and for humanity. As stated in the Science Policy Report that we adopted in 1971, the objective of research in this Museum is "to answer fundamental scientific and philosophical questions about the nature and diversity of the universe."

We must reward and encourage the spark of scientific insight where found in the work of our curators. We must give them the freedom to dissect nature in their examination of it, but we must encourage them to synthesize from what they have learned the hypotheses and the theories that can be the really significant advances in mankind's knowledge. Where this has happened before, it has brought greatness to the Museum. It is our responsibility to encourage it in the present and in the future.

*Thomas D. Nicholson*

Thomas D. Nicholson, *Director*



The Animal Behavior Department studies a wide variety of species to learn about behavioral evolution. During an extended field trip to the Primate Research Institute in Japan, Dr. Ethel Tobach analyzed the social reactions of monkeys to newly-introduced objects.

## REVIEW OF THE YEAR 1973-1974

During the year, the following distinctions and honors were given to members of the staff:

**Administration:** Dr. Thomas D. Nicholson was elected Vice-President of the American Association of Museums. Mr. Charles A. Weaver, Jr., was re-elected Chairman of the Museums Council of the City of New York.

**Department of Animal Behavior:** Dr. Ethel Tobach was elected a Fellow of the Division of Physiological and Comparative Psychology of the American Psychological Association, and was elected Vice-President of Behavioral Sciences Sections of the New York Academy of Sciences. She was appointed the representative of the American Orthopsychiatric Association to the American Association for the Advancement of Science. Dr. Peter Moller was elected Vice-President of the New York Entomological Society.

**Department of Anthropology:** Dr. Robert L. Carneiro received the Monks Memorial Prize from the Institute of Human Studies for his article, "A Theory of the Origin of the State." Columbia University appointed Dr. Enid Schildkrout an Associate in the University Seminar on Studies in Contemporary Africa. Dr. Margaret Mead received an Honorary Doctor of Science Degree from the University of Delhi, India; an Honorary Doctor of Laws Degree from the University of Bombay, India; and an Honorary Doctor of Humanities Degree from Clark University, Worcester, Massachusetts. Dr. Mead received the Lehman Award from the New York Academy of Sciences and the Horizon House Medal from Philadelphia's community mental health association, Horizon House.

**Department of Ichthyology:** Dr. Donn E. Rosen is President-Elect of the Society of Systematic Zoology; he will serve the Society as President for two years beginning in 1975. Dr. James W. Atz is President-Elect of the American Society of Ichthyologists and Herpetologists, and will hold office in the year 1975.

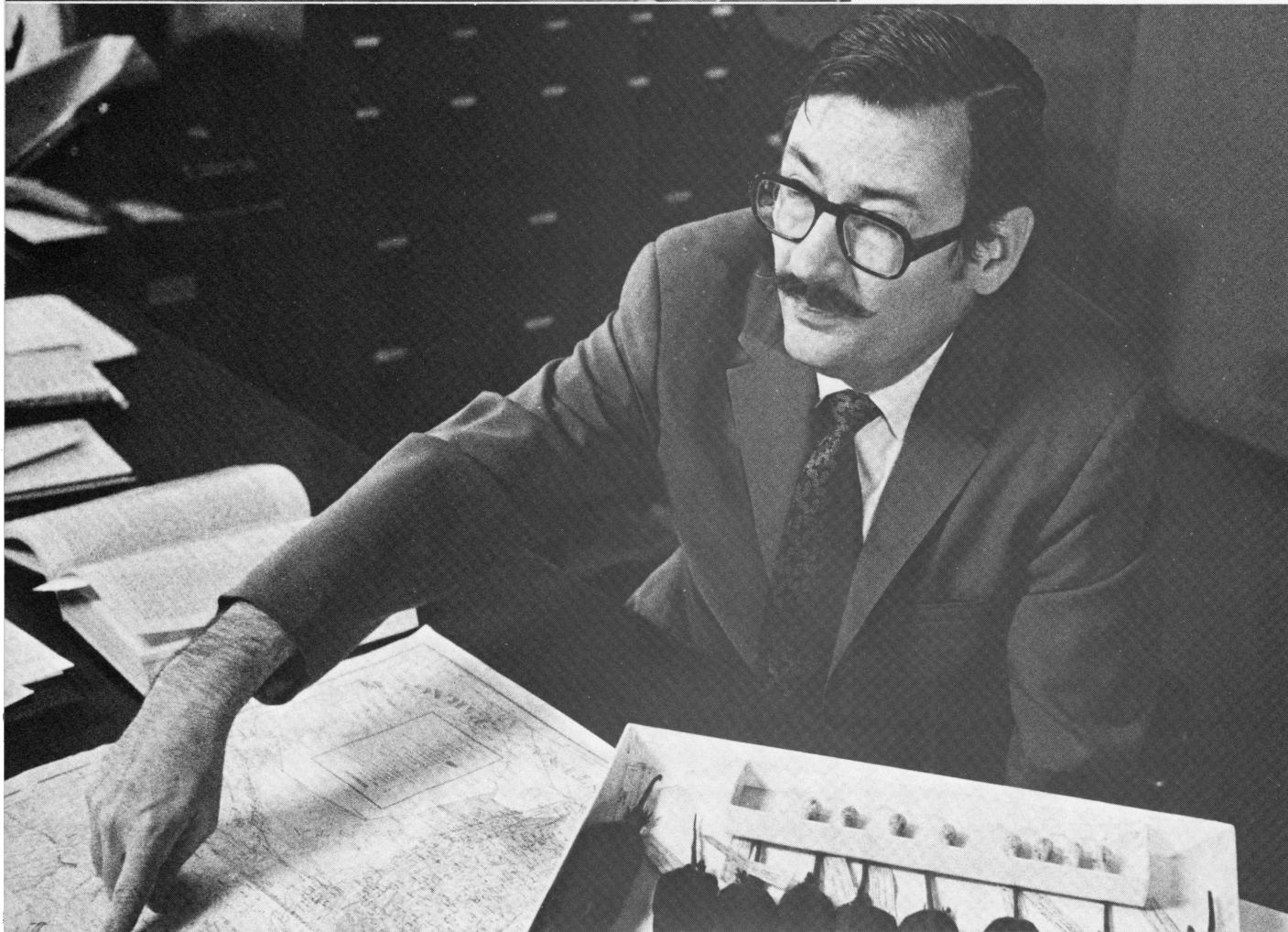
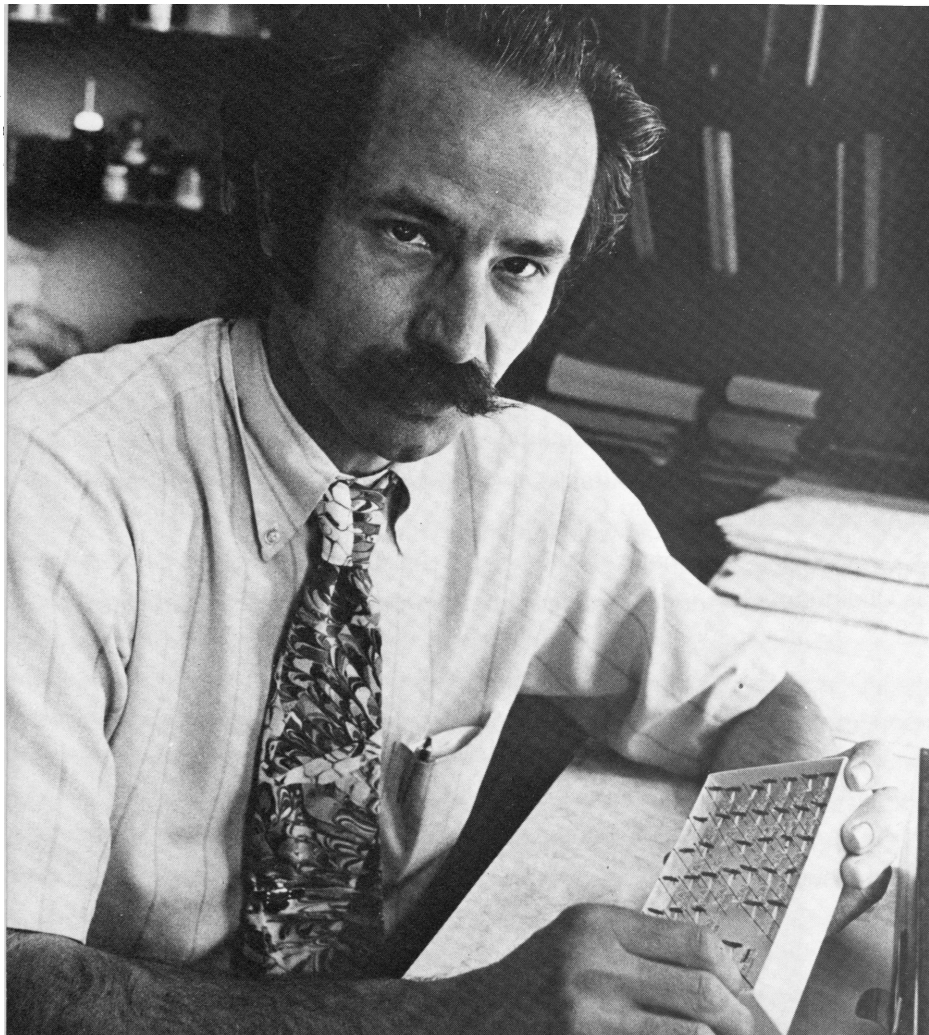
**Department of Living Invertebrates:** Dr. Horace W. Stunkard was accorded the 1973 Boris Pregel Award for Research in Biology by the New York Academy of Sciences for his paper on the trematode family Bucephalidae. Dr. Stunkard was also elected an honorary member of the German Society for Parasitology.

**Department of Ornithology:** Dr. Charles Vaurie was voted a "Membre Correspondant du Museum" by the Paris Museum. Miss Helen Hays was elected President of the Linnaean Society of New York, the first woman to be accorded this honor. Dr. Jared Diamond was elected to membership in the American Academy of Arts and Sciences. Dr. Robert W. Dickerman was elected a Fellow of the American Ornithologists' Union. Mr. G. Stuart Keith was elected President of the American Birding Association.



Mrs. Constantine Sidamon-Eristoff, a Trustee and Chairwoman of the Exhibition Committee, was elected Vice-President of the Board of Trustees. Dr. Lee H. Herman, Jr., Associate Curator (above right), was named Chairman of the Department of Entomology, and Dr. Sydney Anderson, Curator (below right), was named Chairman of the Department of Mammalogy.





**Department of Vertebrate Paleontology:** Dr. Edwin J. Colbert received an Honorary Doctor of Science Degree from the University of Nebraska.

**Archbold Biological Station:** Mr. Richard Archbold received the 1974 Conservation Achievement Award from the Florida Conservation Council in recognition of his "lifetime of work in conservation and for his great help to other scientists." Dr. James N. Layne was elected to the Board of Directors of the Florida Audubon Society. Dr. Layne also served as Chairman of the Florida Committee on Rare and Endangered Plants and Animals.

**Southwestern Research Station:** Mr. Vincent D. Roth was elected Vice-President of the American Arachnological Society.

**Library:** Miss Nina J. Root was elected the first woman member of the Archons of Colophon.

Staff changes are recorded below, including those effective July 1, 1974:

**Department of Animal Behavior:** Dr. Carol Ann Simon was appointed Associate and Dr. Rae Silver was appointed Research Associate.

**Department of Astronomy:** Dr. Mark R. Chartrand, III, was appointed Chairman and Assistant Astronomer.

**Department of Entomology:** Dr. Lee H. Herman, Jr., was appointed Chairman and Associate Curator, Dr. Norman I. Platnick was appointed Assistant Curator, and Mr. Sarfraz Lodhi was appointed Scientific Assistant.

**Department of Fossil and Living Invertebrates:** Dr. Dorothy E. Bliss was appointed Chairwoman and Curator of this new department, which comprises the staffs of the former Departments of Invertebrate Paleontology and Living Invertebrates. Dr. Niles Eldredge was promoted to Associate Curator.

**Department of Herpetology:** Dr. Charles J. Cole was promoted to Associate Curator.

**Department of Ichthyology:** Dr. Tyson R. Roberts and Dr. James S. Farris were appointed Research Associates.

**Department of Mammalogy:** Dr. Sydney Anderson was appointed Chairman and Curator. Mr. José L. P. Tello was appointed Field Associate.

**Department of Mineralogy:** Dr. D. Vincent Manson was appointed Consultant.

**Department of Ornithology:** Dr. Francois Vuilleumier was appointed Associate Curator and Dr. Jared Diamond was appointed Research Associate.

**Lerner Marine Laboratory:** Dr. Robert F. Mathewson was appointed Resident Director Emeritus and Dr. James C. Tyler was promoted to Resident Director.

**Department of Education:** Mr. Henry Frank was appointed Caribbean Studies Assistant Coordinator.

**Natural History Magazine:** Mrs. Sue Severn was appointed Production Manager.

**Public Affairs:** Miss Marilyn Badaracco was promoted to Guest Services Coordinator, and Mrs. Sally V. Nolan was appointed Assistant Guest Services Coordinator.

**Administrative and Scientific Research Services:** Mrs. Susan B. Selden was appointed Executive Secretary.

**Building Services:** The following persons were appointed Supervising Museum Attendant-Guards: Mr. Peter F. Clarke, Mr. Ralph J. Csencsics, Mr. Sankar Gokool, Mr. Franklin W. Hoffman, Jr., Mr. Robert P. Jones, Mr. Anthony J. Maloney, Mr. Frank P. Masavage, Mr. Walter M. Michalski, Mr. Joseph W. O'Neill, Mr. Albert J. Sable and Mr. Henry J. Tappen.

**Museum Shop:** Mr. Joseph J. Battaglia and Mrs. Eleanor T. Forbes were appointed Assistant Managers.

**Office of the Controller:** Mr. William H. Humber was appointed Accountant.

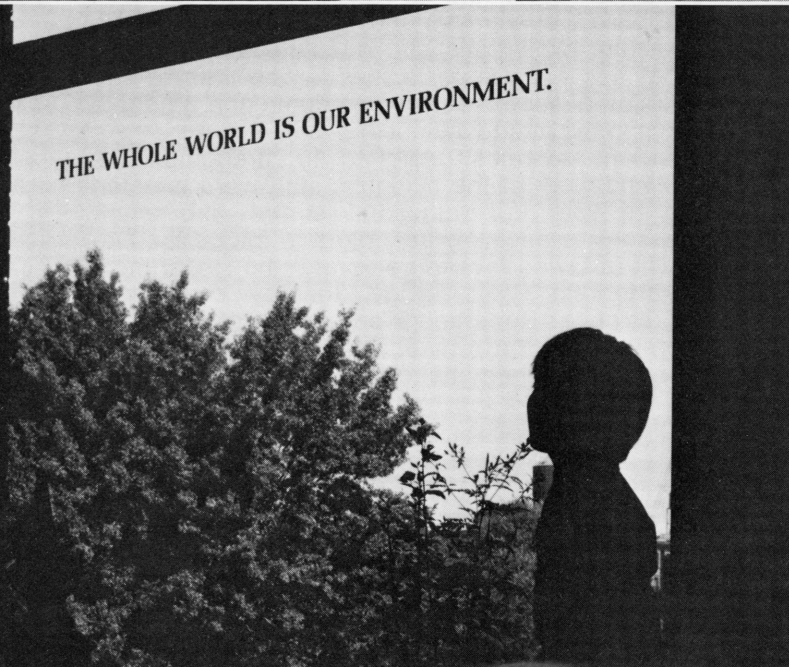
**Personnel:** Miss Margaret L. Johnston was appointed Museum Nurse.

**Plant Operations, Construction and Maintenance:** Mr. William J. Barbieri was appointed Foreman of Carpenters, Mr. Anthony W. Gallardo was appointed Foreman of Electricians, Mr. William S. Heslin was appointed Foreman of Sheet Metal Workers, Mr. John S. Ignatieff was appointed Foreman of Plumbers, Mr. Vincent J. LePore was appointed Plant Engineer and Mr. Klaus A. Wolters was appointed Foreman of Painters.

**Projection:** Mr. Arthur L. Grenham was appointed Manager.

The new Alexander M. White Natural Science Center is being widely praised for its success in interpreting the urban environment.







## SCIENCE, EDUCATION AND EXHIBITION

Freelance artist Robert O. Blechman (center) sketches cartoons to illustrate aspects of human variation for the new section of the Hall of the Biology of Man, while Drs. Ian Tattersall (left) and Stanley A. Freed study a model of the new area.

A measure of the vitality of The American Museum of Natural History is the extent to which the institution is responsive to its visitors, to its immediate neighborhood, to the scientific community, and, ultimately, to a society increasingly concerned about its natural resources and their conservation. During the past year the Museum, through the interrelated functions of exhibition, education and scientific research, fulfilled its responsibilities to these groups in a variety of noteworthy ways.

In partial assistance to the Museum in fulfilling these obligations, major support has been and will be given by government agencies that recognize the Museum as a major resource for its many communities. The National Science Foundation continues to give core support grants to three of our collections that it has identified as national resources. The National Endowment for the Arts continues to support the renovation of collections areas and special projects in exhibition and education. Research grants from the National Science Foundation, the National Institutes of Health, and the Office of Naval Research continue to support our scientists. And a significant award was announced in June of this year by The New York State Council on the Arts. The Council grant to the Museum for 1974-1975 will be \$983,182, toward special educational and public service projects but mostly toward basic Museum and Planetarium support to maintain and improve educational and visitor services, maintenance, curatorial activities and collection management.

### **Exhibition**

Exhibition is probably the Museum's most readily-perceived service: during the year over a million and a half visitors were attracted to its halls, eager to learn about the natural world, its history, its problems and its future. While throngs of visitors viewed the exhibitions, behind-the-scenes professionals in the Department of Exhibition and Graphics were collaborating with other Museum personnel in planning, building and furnishing new permanent exhibition halls and many temporary displays. Artists, designers, model makers, preparators, painters, and lighting experts were, through their work, expressing new design concepts and developing new communication techniques. While continuing work on five major halls, they planned and executed twenty temporary exhibitions, among which several were of topical interest, such as "Jumbo" and "O Christmas Tree." Some were of general biological interest: "Roaches Are Here to Stay" and "Curassows and Related Birds." Others combined scientific and esthetic appeal: "Birds in the Wood" and "Museum Treasures in Needlepoint." The temporary exhibition, "Lerner Marine Laboratory—Window to the Sea," proved especially effective at highlighting the connection between exhibition and research.

### **Education**

One of the Museum's important links with the immediate community, the Department of Education offered a variety of services to thousands of metropolitan area residents. Film programs, slide talks and gallery tours were among the ways in which the staff disseminated knowledge about the natural sciences. Instructors and hundreds of volunteers also taught individual classes and courses to teachers, student nurses and lay adults as well as children. The opening of the Alexander M. White Natural Science Center represented another advance in the department's quest for greater Museum relevance to the New York community. Through innovative, participatory educational techniques, the Center has enriched the Museum-going experience for children, offering new perceptions of the urban environment. In addition, the Education Gallery exhibitions, "Impressions of Haiti" and "Children of Africa," underscored the department's commitment to increase exposure to, and appreciation for, New York's ethnic diversity.

### **Scientific Research**

Much less visible to the casual Museum visitor than its educational and exhibition services are the activities of the scientific staff; yet it is through its scientists that the Museum's influence is most widespread and its contributions to society most significant. The first responsibility of the Museum scientist is to carry out research and to publish research findings. But it is not through publications alone that the Museum's presence makes itself known. In the past year scientific staff members traveled, both in this country and abroad, not only to conduct field research, but also to attend scientific seminars, to present papers, to lecture at universities, to appear on television and radio.

At the Museum, the scientific staff is involved in myriad activities in addition to research: they maintain and make available for study vast collections of natural history specimens, they provide the rationale for Museum exhibitions and educational programs, and they assume responsibilities for the training and supervision of scores of undergraduate and graduate students in the natural sciences.

Important changes designed to strengthen the quality and work of the scientific staff were effected during the year. For both administrative and scientific reasons, a decision was made to merge the Department of Living Invertebrates and the Department of Invertebrate Paleontology, thereby creating a larger, stronger Department of Fossil and Living Invertebrates. With the formation of the new department, the two distinguished chairmen of the former departments relinquished the responsibilities of the chair. Dr. Norman D. Newell, of the former Department of Invertebrate Paleontology, made major contributions to the growth and significance of the Museum's collections and to research in his field. Outstanding



among his achievements was the planning of the John Lindsley Hall of Earth History. Dr. William K. Emerson, of the former Department of Living Invertebrates, ably guided his staff in the production of new scientific insights and was primarily responsible for the exhibition, *Shells of New York State*. Both men retain their curatorial rank. Dr. Dorothy E. Bliss was appointed Chairwoman of the new department.

This year has also seen the timely adoption of policies and procedures outlining the Museum's ethical and legal responsibilities in the acquisition and disposition of natural history specimens. Extensive physical renovations of the fifth-floor scientific laboratories and collection areas bear witness to the Museum's commitment to maintain its collections in the best possible condition—a responsibility which will be more easily carried out with the continued support of the National Science Foundation.

Perhaps the most far-reaching change was the decision that, instead of being given permanent appoint-

ments, chairmen and chairwomen of the scientific departments will be appointed for seven-year terms, at the end of which they will be reviewed and possibly reappointed for an additional five-year term. Rotating chairmanships will provide new and vigorous leadership within departments, while at the same time ensure that all chairmen and chairwomen will eventually be able to return to more active research.

Under the new policy, Dr. Sydney Anderson has assumed the chairmanship of the Department of Mammalogy. Under the leadership of the former chairman, Dr. Richard G. Van Gelder, the department has contributed significantly to the Museum's exhibition program, has substantially improved the quality and accessibility of its collections, and has assumed a major leadership role in the worldwide community of mammalogists.

Jerome G. Rozen, Jr.,  
*Deputy Director for Research*

## DEPARTMENT OF ANIMAL BEHAVIOR

Scientists spend much of their time involved in fact-finding, but if their work went no further it would be uninteresting and sterile. By contrast, the second stage of scientific research—namely, the synthesis and interpretation of data, and the development of concepts and hypotheses—leads to broad theoretical formulas that contribute to new ways of viewing the world.

Since it was formed 40 years ago, this department has been a leader in formulating new theories of animal behavior. Its founder, Dr. G. Kingsley Noble, was among the first behaviorists to stress the significance of hormones as regulators of social and sexual behavior in lower vertebrates. His successor, Dr. Frank A. Beach, developed the first comprehensive theory concerning the physiological mechanisms of sexual behavior in vertebrates.

Later, Dr. T. C. Schneirla developed a body of theory which stressed the importance of understanding the evolution and development of behavior. His emphasis on the significance of early experience is now widely accepted by child psychologists.

Today, Dr. Lester R. Aronson is studying the evolution of the cerebrum. Based on his own experiments and those of others, he has formulated the theory that this vital area of the brain evolved from a general, non-specific activating mechanism in the primitive vertebrates.

Dr. William N. Tavolga has proposed that animal communication can be analyzed in terms of a series of different levels. Thus, the song of passerine birds, for example, represents a higher level of interaction, with very different properties, than the sounds made by some fishes, while many primates communicate symbolically in a still more complex fashion.

The face, snout and mouth of many animals are well-equipped with tactile receptors, but the significance of this system has been grossly underestimated. In experiments with birds and mammals, Dr. H. Philip Zeigler is now finding evidence that touch reception at the head may play as important a role in behavior as smell, vision, hearing and taste. In related studies, Dr. Peter Moller has discovered an entirely new kind of communication in certain fishes: weak electric discharges.

The studies of Drs. Ethel Tobach, Howard R. Topoff and John Wayne Lazar on the development of social behavior indicate that in the so-called higher animals, there are increasingly complex factors which determine socialization, flexibility of behavior, and a greater capacity to adapt to and modify environments.

The public rightfully wishes to know how and to what extent the results of animal behavior studies can be applied to human problems. The relevancy of such studies depends on whether behavioral theory has been appropriately applied to an appropriate problem. Some writers, however, have emphasized superficial similarities between human and animal behavior while neglecting fundamental differences in the development and organization of the behavior.

This has led to erroneous conclusions: for example, those concerning human aggression. By contrast, a judicious application of behavioral theory can provide profound insight into human problems. Examples can be found in "The Four Horsemen: Racism, Sexism, Militarism and Social Darwinism" (Behavioral Publications, 1974) by Drs. Tobach and Topoff and two of their colleagues.

Lester R. Aronson, *Chairman*

## Undergraduate Research Participation Program

Six students worked at the Museum and in the field during the fifteenth year of the Undergraduate Research Participation Program. Five aided research programs in anthropology and one worked in the Department of Animal Behavior. The projects in which they participated resulted in the publication of two scientific papers; three others are in press or in preparation.

Lester R. Aronson

## DEPARTMENT OF ANTHROPOLOGY

Department research dealt with a variety of problems in ethnology, archeology and physical anthropology. Dr. Stanley A. Freed and Dr. Ruth S. Freed of Seton Hall University reached the final stages in their monograph on urbanization in a traditional north Indian village. He also began a study of the careers of women anthropologists.

Dr. Gordon F. Ekholm continued his research on Asian-American trans-Pacific contacts in pre-Columbian times; he also spent five weeks examining Maya sites in Tabasco, Chiapas and Yucatán. Dr. Robert L. Carneiro analyzed the influence of "The Study of Sociology" by Herbert Spencer on the rise of American social science. He continued his work on a regional ethnology of Amazonia and on the use of the stone axe by certain Amazonian Indians.

Dr. Enid Schildkrout, appointed Assistant Curator July 1, examined ethnicity and urbanization in Kumasi, Ghana. Dr. Ian Tattersall completed a study of the relationships of the Malagasy lemurs. He also analyzed data on the behavior and ecology of the mongoose lemur, and continued his studies on the subfossil lemurs of Madagascar and on the mechanics of mammalian jaws. Dr. David Hurst Thomas continued his work at several archeological sites in central Nevada. He also wrote the draft of a book on quantitative methods in anthropology.

Dr. Junius B. Bird studied Panamanian Paleo-Indian archeological sites. Dr. Margaret Mead analyzed field materials on the Mundugumor in preparation for a monograph. She also continued to be active in the Institute for Intercultural Studies, Inc., which she serves as Secretary of the Board of Directors. Dr. Harry L. Shapiro completed a book on Peking Man



and began writing a biography of Dr. Earnest A. Hooton. Dr. Philip C. Gifford, Jr., studied the designs of Trobriand shields. Dr. Walter A. Fairservis, Jr., continued his field research on the civilizations of the Old World, and Dr. Rhoda Metraux her analysis of various materials of the latmul people. Mrs. Carin Burrows worked on preserving and translating inscriptions on the Museum's Tibetan paintings. Mr. Robert Bettinger, an Ogden Mills Fellow, studied archeological materials from Nevada.

There was progress on several important, permanent exhibitions: Mollusks and Mankind, Peoples of Asia, and a third section of the Hall of the Biology of Man, due to open in November. A temporary preview exhibition on Asian drama is also scheduled for November; an exhibition on loan from the Chicago Field Museum of Natural History, "Contemporary African Arts," is due to open next May.

Anthropology museums and departments of anthropology in larger museums are now forming a professional organization to interest the government in providing long-term funding for the storage, preservation and documentation of anthropological collections. Dr. Freed has taken a leading role in forming the new group, known as the Council for Museum Anthropology.

Stanley A. Freed, *Chairman*

#### **DEPARTMENT OF ASTRONOMY & THE AMERICAN MUSEUM- HAYDEN PLANETARIUM**

This year was an active one in astronomy and space technology. Consequently, the Planetarium served as an information source for such events as the Skylab Missions, Mariner 10's voyages to Mercury and Venus, and Pioneer 10's trip to Jupiter. Comet Kohoutek's faint appearance during the fall and winter brought in 20,000 written requests for information on comets; about 1000 telephone calls per day were made to the Planetarium's recorded sky information service.

Dr. Mark R. Chartrand, III, became Chairman in March, succeeding Dr. Kenneth L. Franklin, who retains the rank of Astronomer. The number of staff continued at a reduced level for reasons of economy.

The Perkin Wing was nearly completed; it houses a new library and sales shop (first floor), and an area which will become the Hall of the Sun (second floor). The control mechanism for the multimedia slide show in the Guggenheim Space Theater was completely renovated.

In October, planetarium directors from around the country attended a gala celebration marking the 50th anniversary of the invention of the projection planetarium. The formal event was co-hosted by the Planetarium and Carl Zeiss, Inc.

The evening and Saturday courses in astronomy and celestial navigation continued to be well-at-

tended, with about 800 persons participating in a total of 42 courses. Many lectures were also given to school and college classes, as well as to special groups. The 14th Summer Science Training Program, supported by the National Science Foundation, included 80 high school students taught by two astronomers and two graduate assistants; ten other astronomers served as visiting lecturers.

Attendance at public sky shows remains at about the same level for adults as last year. However, attendance by young people at public shows showed a significant increase: 13.5% over last year. Attendance at school programs dropped 20%, probably reflecting the fuel shortage and the scheduling difficulties of school buses. Next year, the Planetarium plans a wider variety of programs for school groups.

Mark R. Chartrand, III, *Chairman*



For many years, Dr. Junius B. Bird has been analyzing the textile technology of ancient cultures, particularly those of pre-Columbian South America. Here his assistant, Mrs. Milica Skinner, uses a microscope to study a Peruvian fabric still on its loom.

To produce the first model ever made of a live snake, an American Museum-Bronx Zoo team began by anesthetizing a large Burmese python with halothane (1). Next, Dr. Charles J. Cole, Herpetology, and Messrs. David J. Schwendeman and Seymour M. Couzyn, Exhibition, settled the sleeping snake into an egg-incubating position for molding in plaster (2 & 3). After 17 minutes, the python was removed from the mold (4). From it, a lifelike model was fashioned, and inside the coils a batch of plaster eggs was placed (5). Finally the replica was painted to match the original in every detail (see cover).



## DEPARTMENT OF ENTOMOLOGY

Dr. Lee H. Herman, Jr., who served as Acting Chairman for the first half of the year, became Chairman on January 1. Along with his new administrative duties, he continued working on a reassessment of the higher classification and phylogeny of the rove beetles. He completed an analysis of the subfamily Pseudopsinae and is close to completing the second part of his monograph on *Bledius*.

Dr. Norman I. Platnick, appointed Assistant Curator in September, assumed responsibility for the largest arachnid collection in the world. Revising the revalidated family Stenochilidae, he found evidence that casts serious doubt on one of the major divisions in the higher classification of spiders between Haplogynae and Entelegynae. He presented his findings at the Sixth International Congress of Arachnology in Amsterdam. He also revised *Trachelas* (Clubionidae), covering a number of species that are of medical importance because they bite human beings.

Dr. Frederick H. Rindge continued his systematic studies of the New World Geometridae, revising four genera of these moths.

Dr. Jerome G. Rozen, Jr., continued his research on a wide variety of problems relating to the higher classification and phylogeny of bees. On a field trip to Brazil, he gathered information on several groups of exomalopsine bees indicating that they may be the most primitive anthophorids; they may also be the progenitors of both pollen-collecting anthophorids and parasitic forms.

Dr. Pedro Wygodzinsky continued to concentrate on South American black flies, emphasizing members of the Prosimuliini tribe. He also described a previously unknown, thread-legged assassin bug of the subfamily Emesinae from Australia and prepared two papers on apterygote insects.

Dr. Willis J. Gertsch continued his work on cave-dwelling spiders, Dr. Mont A. Cazier his revision of the fly family Apioceridae, and Dr. Alexander B. Klots his studies of the North American Crambinae moths (Pyralidae). Dr. Kumar Krishna continued his research on termites, collaborating with Dr. O. B. Chhotani of the Zoological Survey of India, Calcutta. Dr. Cyril F. dos Passos pursued his studies of North American butterflies, while Dr. F. Christian Thompson completed several manuscripts on the hover flies of the family Syrphidae.

Miss Alice Gray was in charge of preparing the successful Museum Showcase, "Roaches Are Here To Stay." The exhibition attempted to correct popular misconceptions about these insects.

Dr. Lee H. Herman, Jr., *Chairman*

## DEPARTMENT OF HERPETOLOGY

The forthcoming Hall of Reptiles and Amphibians dominated the activities of the curatorial staff again this year. Three exhibits were completed. The ko-

modo dragon lizard diorama features the original specimens from the old Reptile Hall, completely refurbished and in an entirely new setting. The reticulated python group, which also utilizes a rehabilitated specimen, is placed in a new setting that faithfully reproduces the appearance of a southeast Asian rainforest. The exhibit on reptile diversity and distribution displays numerous new mounts and graphics which show the evolutionary relationships of living species. Work also proceeded on many other exhibits, including reptile reproduction and anatomy, and amphibian diversity and distribution.

Working with the New York Zoological Society and the Museum's Exhibition Division, Dr. Charles J. Cole helped produce what is believed to be the first model ever made using a live snake. The snake, a Burmese python purchased especially for the new hall, was anesthetized at the Bronx Zoo Hospital and molded in plaster. When the plaster hardened sufficiently, the sleeping snake was removed and revived. In March the live snake was exhibited alongside its fiber glass replica in the Museum Showcase, "The Making of a Python."

During the summer, Dr. Cole continued his work at the Southwestern Research Station on geographic variation in fence lizards. A highlight was the discovery of fence lizard populations that look alike and live in similar habitats on the Colorado Plateau of Arizona, but which have a pair of distinctly different chromosomes. The finding has implications for the evolutionary history of these lizard populations and for changes in the surrounding vegetation communities.

Dr. Richard G. Zweifel also worked at the station, continuing his experiments on the temperature tolerances of amphibian embryos. Dr. Charles W. Myers continued his studies of poison-dart frogs in South America, working in Ecuador and Colombia with Dr. John W. Daly of the National Institutes of Health. The two have discovered new classes of poisons in the skin secretions of various frogs. The data are now being used to solve specific taxonomic problems in this family of frogs.

Richard G. Zweifel, *Chairman*

## DEPARTMENT OF ICHTHYOLOGY

Drs. Donn E. Rosen and Gareth J. Nelson contributed articles to "The Interrelationships of Fishes," the results of a symposium by the same name held in England by the Linnean Society of London. Drs. P. Humphry Greenwood, Colin Patterson and Tyson Roberts also contributed to the volume. The articles contain new insights on the evolutionary history of both ray-finned and lobe-finned fishes. The volume as a whole represents the first large-scale application of the principles of phylogenetic systematics to vertebrate taxonomy. These principles were formulated by Dr. Willi Hennig, a Corresponding Member



Presiding over this impressive array of horse skulls is Mr. Morris F. Skinner of Vertebrate Paleontology, the world's foremost authority on equine evolution.

of the Museum.

Working with Dr. Leon Croizat, a biogeographer and Corresponding Member of the Museum, Drs. Rosen and Nelson produced a theoretical discussion, now in press, on some underlying principles of biogeography. The paper opposes the view that all present-day distributions of groups of organisms are the result of repeated dispersals from centers of origin. It suggests as more fundamental the idea of the subdivision in place (vicariance) of large ancestral groups followed by some dispersal of the group members.

Dr. Rosen's study of the salmon and their relatives has led him to hypothesize that the three recognizable groups of northern salmoniforms—the pikes, salmon and trouts, and smelts—have representatives living in the fragments of the ancient southern landmass, Gondwanaland. His correlations of phylogenetic and biogeographic data with recent geophysical estimates of Gondwanaland's age also suggest that some groups represented in the south may be at least 90 million years old. Similar correlations indicate that the salmoniforms as a whole may be about 180 million years old.

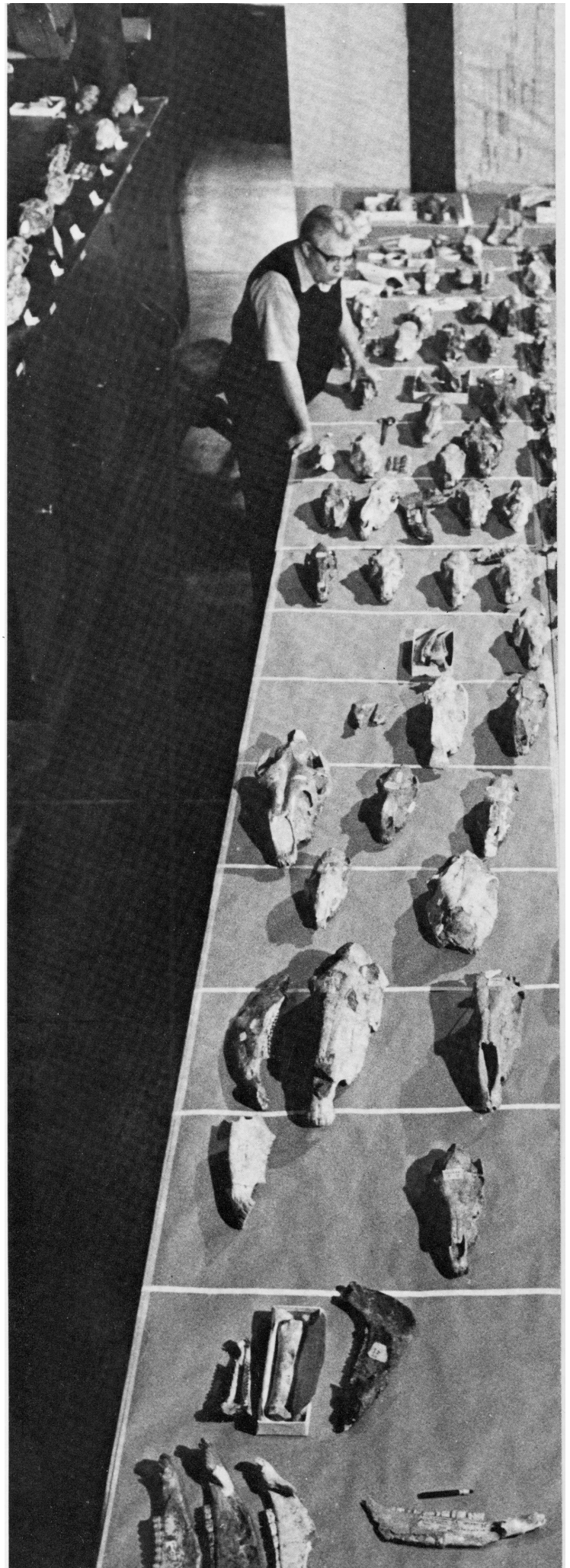
With the assistance of Dr. Reeve M. Bailey and Mrs. Lynne M. Hirsch, Dr. Rosen also continued a systematic and biogeographic study of Guatemalan fishes; field work is now drawing to a close. Dr. Nelson began studies of the plotosid catfishes of the Old World tropics in collaboration with Mrs. M. Norma Feinberg.

Dr. C. Lavett Smith has arrived at certain tentative conclusions about community structure and resource-sharing among coral reef fishes. He has found that general principles seem to govern the relationship between the stage of reef development and faunal diversity and population size. The control of individual size range and species composition appears to be related to fish size and feeding diversity. Dr. Smith has been collaborating with Dr. James C. Tyler, Resident Director of the Lerner Marine Laboratory at Bimini.

Dr. James W. Atz concluded the transfer to the *Zoological Record* of the Zoological Society of London of all bibliographic materials and computer programs originally developed for the *Dean Bibliography of Fishes*. He also made plans to compare a strain of fishes that has been inbred—brother to sister—for 40 generations in the laboratory with the original natural population from which it was collected in 1939. His goal is to examine how domestication affects growth patterns and body form.

Altogether, department members published eighteen scientific papers. They also supervised the work of seven resident graduate students, and Dr. Smith participated in the creation of "Window to the Sea," a special temporary exhibition about the Lerner Marine Laboratory.

Dr. Donn E. Rosen, *Chairman*



## DEPARTMENT OF INVERTEBRATE PALEONTOLOGY

This is the last annual report of the department. Created in 1960 out of the old Geology and Paleontology Departments, it will join Living Invertebrates on July 1 to form the Department of Fossil and Living Invertebrates.

Dr. Norman D. Newell initiated two field expeditions to northwest Africa for his long-term study of continental drift. He is concentrating on the geologic and paleontologic relationships between the African, European and North American Continents. Analyzing the Permian system in southern Tunisia in January, he found new evidence to support the theory that a world-wide ecological disturbance occurred at the close of the Paleozoic Era. The disturbance was characterized by abrupt geographic changes and by the extinction of approximately half of the families of animals represented in Permian rocks. A likely cause of the disturbance is believed to be environmental disruption on a global scale precipitated by continental drift.

Dr. Roger Lyman Batten continued his study of planktonic pteropod shells and completed the first draft of a monograph on the ultramicroscopic structure of two families of living mollusks: the Scissurellidae and Fissurellidae. This work has led Dr. Batten to formulate a new theory of how these gastropods evolved. He reported his conclusions at an international conference on molluscan phylogeny held in London in April.

Dr. Niles Eldredge finished two research projects on fossil horseshoe crabs, continued his work on adaptive radiation in calmonioid trilobites of the Southern Hemisphere, and began a new study of European Silurian phacopids and Appalachian Devonian dalmatitids. Each of the projects involved testing hypotheses of evolutionary mechanisms at the species level. Dr. Eldredge reported his findings at a NATO conference on trilobites and merostomes held in Oslo in July.

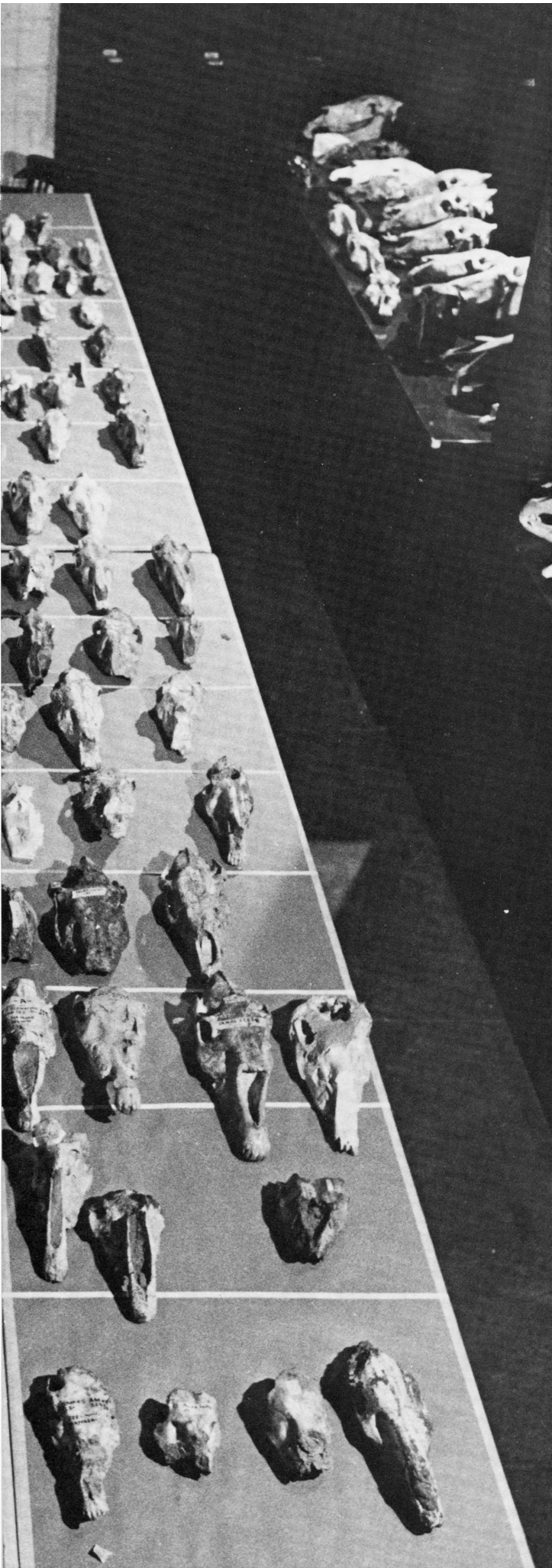
Micropaleontology Press, under the direction of Dr. Tsunemasa Saito, published approximately 3140 pages of illustrated text. The Press publishes a monthly world Bibliography and Index of Micropaleontology, the quarterly journal *Micropaleontology*, and the Catalogues of Radiolaria, Ostracoda and Foraminifera.

Norman D. Newell, *Chairman*

## DEPARTMENT OF LIVING INVERTEBRATES

Dr. William K. Emerson and Mr. Morris K. Jacobson are preparing an illustrated handbook on the common marine, freshwater and terrestrial mollusks ranging from Maine to Florida. It will be the first identification book to cover all three groups; previous books have dealt only with marine mollusks. Messrs. Harold S. Feinberg and William E. Old, Jr., are assisting the authors.

Dr. Emerson also worked on his analysis of the late





Genozoic tropical marine molluscan faunas of the New World. Concentrating on the Baja California region, he is comparing Pleistocene and modern marine faunas to discover whether any significant changes have occurred in the marine climate since the Pleistocene. The peninsula now has a transitional mixture of semitropical Panamic and warm temperate Californian faunal elements.

Drs. Dorothy E. Bliss and Penny M. Hopkins advanced their efforts to characterize and purify the hormones controlling growth and molting in the land crab, *Gecarcinus lateralis*. Dr. Bliss presented a paper on recent developments in the long-term project at the Sixth International Symposium on Neurosecretion in London in September. Dr. Bliss and her co-workers are also involved in purifying the hormones that regulate color changes in *G. lateralis*, and in studying photoperiodic control of molting and ovarian development.

Dr. Ernst Kirsteuer worked on his study of marine nemertean worms of the western Atlantic and Caribbean. In April he spent three weeks in Belize (formerly British Honduras) participating in a coral reef investigation project of the Smithsonian Institution. He examined the distribution of interstitial nemerteans in tropical beaches, and joined Dr. Klaus Rützler of the Smithsonian to study the response of coral reef invertebrates to oxygen depletion and changes in water temperature.

Dr. Linda H. Mantel continued her study of hormones in the central nervous system of crabs that regulate salt and water balance. Dr. George A. Schultz made considerable progress in his taxonomic studies of marine and terrestrial isopods of the Western Hemisphere.

Working at the Museum and at the Woods Hole Marine Biological Laboratory, Dr. Horace W. Stunkard continued his study of trematodes which occur as parasites in gastropod and bivalve mollusks that are often eaten by birds. Better knowledge of these and other parasitic marine worms could lead to effective measures of control.

Mr. Feinberg pursued his taxonomic and zoogeographic investigation of the gastropod family Polygyridae. Mr. Old made progress in his taxonomic and distributional studies of amphineuran mollusks. He also described a new conacean gastropod, *Conus vicweei*, from Indonesia. To date, only about a dozen specimens of these handsome shells are known.

William K. Emerson, *Chairman*

## DEPARTMENT OF MAMMALOLOGY

For more than a year, Dr. Guy G. Musser has collected mammals in the forested mountains of Celebes for an intensive study of a focal point in the evolution of the rodent genus *Rattus*. A leading authority on this genus, he has found specimens of previously rare species and has been analyzing a broad spectrum of data. For example, he has kept some of the rats in captivity to observe their behavior and has also prepared slides of their chromosomes to aid classification. His field work will continue through 1974.

Dr. Richard G. Van Gelder returned to Mozambique in July, and again in April, to complete a four-year study of the nyala antelope with Field Associate José L. P. Tello. The two also finished the first draft of their manuscript on the natural history and behavior of this little-known species. Dr. Van Gelder also prepared a manuscript evaluating the systematics, ecology and behavior of African Plio-Pleistocene hominids in conjunction with a Wenner-Gren Foundation Conference held in February in New York.

Dr. Sydney Anderson completed a preliminary survey of the mammals of St. Catherine's Island, Georgia, and began a study of its raccoons. He also published a paper on the development of semi-automatic measuring devices for mammalogical research.

Dr. Karl F. Koopman submitted for publication the results of his extensive study of Sudanese bats and he continued his work on bats of other regions of the world. Mr. Hobart M. Van Deusen continued working on a summary of the Seventh Archbold Expedition to New Guinea and on his studies of Australasian marsupials and monotremes. Collaborating with Drs. Van Gelder and Anderson, Miss Marie A. Lawrence used the Museum's scanning electron microscope to analyze the crystal structure of rodent incisor enamel and the cuticle pattern of hairs of members of the cat family. She also studied the classification of Chinese voles.

The department acquired more than 3600 specimens; 2000 resulted from Dr. Musser's field work.



The Common Tern has been the subject of numerous Museum research projects on Great Gull Island and in Venezuela. At right, a young field worker examines a tern chick found along the Venezuelan coast for a study of tern growth.

Fifteen hundred specimens were sent out on loan, and 200 scientists from other institutions studied the collections.

Dr. Richard G. Van Gelder, *Chairman*

## DEPARTMENT OF MINERALOGY

Studies of the high temperature and pressure activity deep within the earth were continued by Drs. D. Vincent Manson and Martin Prinz. They are concentrating on the minute mineral inclusions formed by this activity and found within diamond crystals. Liberated from the diamonds by burning, the inclusions are now being examined under the scanning electron microscope at the Museum. Dr. Manson reported on his findings at the First International Kimberlite Conference at Cape Town in September.

As construction of the new Hall of Minerals and Gems moved into its final stages, the preparation of exhibits accelerated. The hall will stress the necessity for human beings to accommodate their requirements for minerals and other resources to the world's finite supply. The Museum Showcase for June, "The Nature of Minerals," served as a preview of the new hall.

Eleven meteorites and some 1000 minerals and gems were added to the collection. Making the collections available to investigators from around the country and the world continued to be an important activity of the department.

The Museum's Administration, on the advice of a visiting committee of outstanding mineralogists, has developed plans to reorganize and strengthen the department. These plans, which will be implemented in the coming year, provide for two curators, one in meteoritics and one in mineralogy, with appropriate supporting staff.

Norman D. Newell, *Acting Chairman*

## DEPARTMENT OF ORNITHOLOGY

Dr. Dean Amadon resigned as Chairman after serving sixteen years, but remains on as Curator. During his chairmanship, he developed or sponsored such vital and innovative activities as the Kalbfleisch and Great Gull Island Field Research Stations, both largely devoted to bird studies; the complete updating and renovation of the Hall of North American Birds; and an outstanding graduate student program in evolutionary biology conducted jointly with The City University of New York. He also gave much of his attention to the collections and obtained extensive support for their curation, as well as for the wide-ranging field studies of the staff. Along with these varied activities, Dr. Amadon carried on a vigorous research program, concentrating on his specialty, birds of prey.

Dr. Wesley E. Lanyon did field work in several South American countries for his revision of the



*Myiarchus* flycatchers. In Peru, he studied the little-known Rufous Flycatcher and became the first scientist to record, through photographs, the nest of this species. Dr. Lanyon also collaborated with Dr. Lester L. Short on an annotated checklist of birds inhabiting St. Catherine's Island. Dr. Short reached the final stage of his monograph on the world's approximately 200 species of woodpeckers. He worked closely with Dr. Hans Winkler of the Austrian Academy of Sciences, who spent the year at the Museum as a Chapman Fellow.

Mr. John Bull, for many years a Field Associate, was appointed Scientific Assistant on July 1. Dr. Jared Diamond, a Professor of Physiology at the UCLA Medical Center, was appointed Research Associate in September. He specializes in the ecology and evolution of New Guinea's avifauna as well as the physiology of biological membranes.

The second year of National Science Foundation support led to further improvements in the management and utilization of the research collection. The entire department contributed to a detailed Curatorial Guide, which outlines policy, procedure and conduct relating to the collections. Copies have been distributed to other museums with the goal of stimulating dialogue on curatorial practices.

"Curassows and Related Birds," a book by Drs. Amadon and Jean Delacour, inspired a temporary exhibition by the same name that ran during the fall. Elements of an earlier temporary exhibition on Great Gull Island were installed in the Sanford Memorial Hall of the Biology of Birds.

Wesley E. Lanyon, *Chairman*

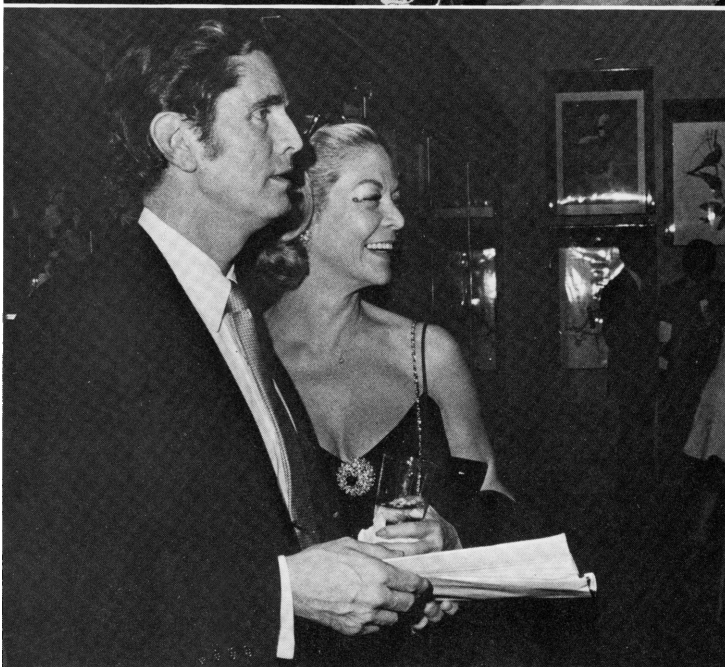
## DEPARTMENT OF VERTEBRATE PALEONTOLOGY

A year after its move into the Childs Frick Wing, the department is still very much involved in transferring the fossil mammal collection to the storage floors—a task that will continue for several more years. Significant assistance in this work continues to be provided through a long-term grant from the National Science Foundation, now in its third year of renewal.

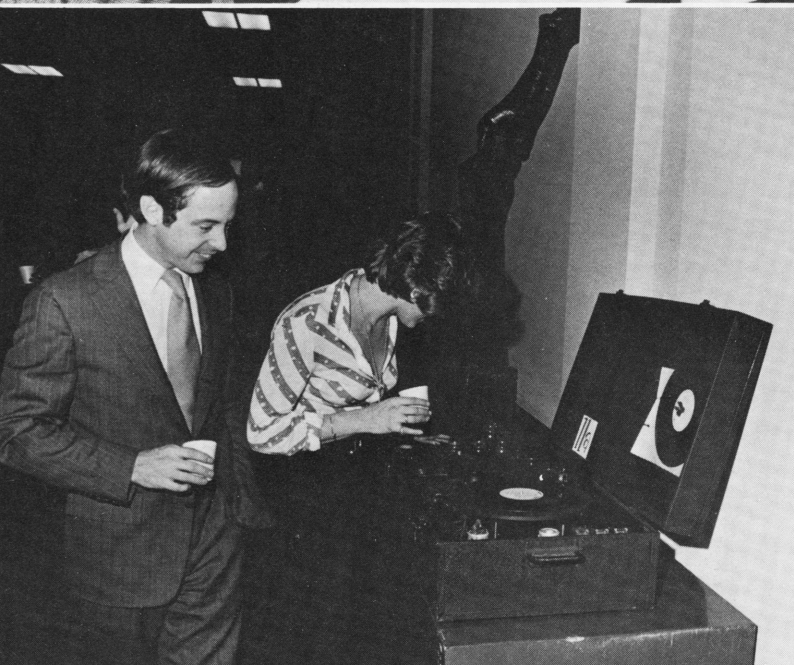
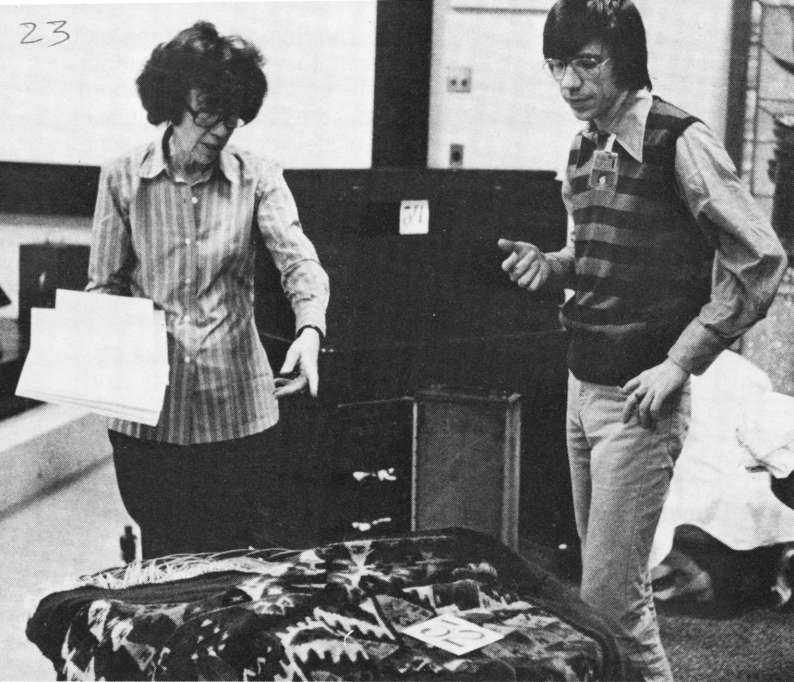
Substantial progress has been made by Dr. Malcolm C. McKenna and his collaborators on a revised classification of the mammals that reflects fossil discoveries and new concepts in systematics. Dr. McKenna has also been studying mammalian biogeography in relation to plate tectonics as well as the occurrence of several groups of early Tertiary mammals from Wyoming and Colorado.

Dr. Richard H. Tedford continued his work on the history of the Australian marsupials and the succession of Miocene mammalian faunas in North America. He and Mr. Beryl E. Taylor are unraveling the long and complicated phylogeny of the dogs, concentrating on the North American taxa. Mr. Taylor has also continued his study of the camels.

Everyone enjoyed the March Auction; bidding was especially high on mementos from the Museum's attics and wildlife prints donated by Museum supporters.









The demolition of the old sulphurbottom whale in December was solemnly reported in newspapers throughout the country. Because it was made of steel and papier mache and weighed 63 tons, it could not be moved to another museum. Today's generations of schoolchildren are thrilled by the new whale in the Hall of Ocean Life.

Messrs. Theodore Galusha and Morris F. Skinner, who together have collected more than half of the fossil mammals in the Frick collection, are preparing maps and reports that will provide locality and stratigraphic documentation for this unique collection.

Dr. Eugene S. Gaffney's concern with both fossil and living turtles has resulted in a book-length manuscript on the turtle skull, as well as a new classification for the group. He is also studying the Jurassic radiation of the chelonians on the basis of some remarkably well-preserved skulls from European collections.

Dr. Bobb Schaeffer, working with Miss Marlyn Mangus, is investigating an assemblage of Early Triassic fishes from British Columbia and comparing it to assemblages of the same age from other parts of the world. The similar fishes in the Lower Triassic rocks of Madagascar, Spitzbergen, Greenland, southern Europe and North America suggest original distribution around the margin of the subcontinent Pangaea. Dr. Schaeffer is also describing Jurassic fishes from Wyoming and is working on the evolutionary implications of vertebrate morphogenesis.

Curators Emeritus Edwin H. Colbert and George Gaylord Simpson completed several papers on Antarctic Triassic tetrapods and Tertiary penguins respectively.

Bobb Schaeffer, *Chairman*

## **ARCHBOLD BIOLOGICAL STATION LAKE PLACID, FLORIDA**

The highlight of this year's operation was the acquisition of an additional 1574 acres of land, increasing the main area of the station to approximately 2625 acres. The resulting increase in habitat diversity greatly enhances research opportunities and insures the protection of a substantial population of Florida Scrub Jays as well as other animal and plant species characteristic of the Ridge section of peninsular Florida. It will also serve as a buffer against future encroachment by land development in the area.

A major portion of the staff's research focuses on the station's mammals and other vertebrates. In addition, Dr. James N. Layne continued a study of Audubon's Caracara. With Messrs. Fred E. Lohrer and Chester E. Winegarner, he conducted censuses of vultures, wading birds and hawks, and other land birds inhabiting a 900-square-mile area in south-central Florida. Messrs. Lohrer and Winegarner also continued their respective studies of the breeding biology of the Screech Owl and the Great-crested Flycatcher.

Dr. Thomas Eisner pursued his studies of the defensive adaptations of arthropods and the effect of ultraviolet reflections emitted by flowers on plant-insect relationships. Dr. A. L. Rand examined the effects of water level changes and herbicide spraying on the nesting of the Purple Gallinule and gathered information on synchronous and asynchronous hatch-

ing in birds. Dr. Glen E. Woolfenden conducted periodic censuses of the Scrub Jay population and intensively monitored nesting activities.

Mr. Bruce Barbour of the University of South Florida completed field work for his thesis on Scrub Jay vocalizations, and Mr. Anthony DeGrange, also a University of South Florida graduate student, began a study of daily and seasonal activity patterns of Scrub Jays.

Thirty-three visiting investigators conducted research at the station. Mr. Ronald Rutowski, a graduate student at Cornell University, studied mechanisms of sex recognition and communication in the courtship of the butterfly, *Eurema lisa*. Dr. Leon Bennett, Senior Research Scientist at New York University, investigated the aerodynamics of flight in heavy-bodied insects. Mr. Karl A. Shump, Jr., a graduate student at Michigan State University, conducted doctoral research on the effects of climate on cotton rat nest-building behavior. Drs. Roger Morse, Cornell University, and Ralph Boch, Canadian Department of Agriculture, continued their experiments on queen recognition in honeybees.

Richard Archbold, *Resident Director*

## **GREAT GULL ISLAND LONG ISLAND SOUND, NEW YORK**

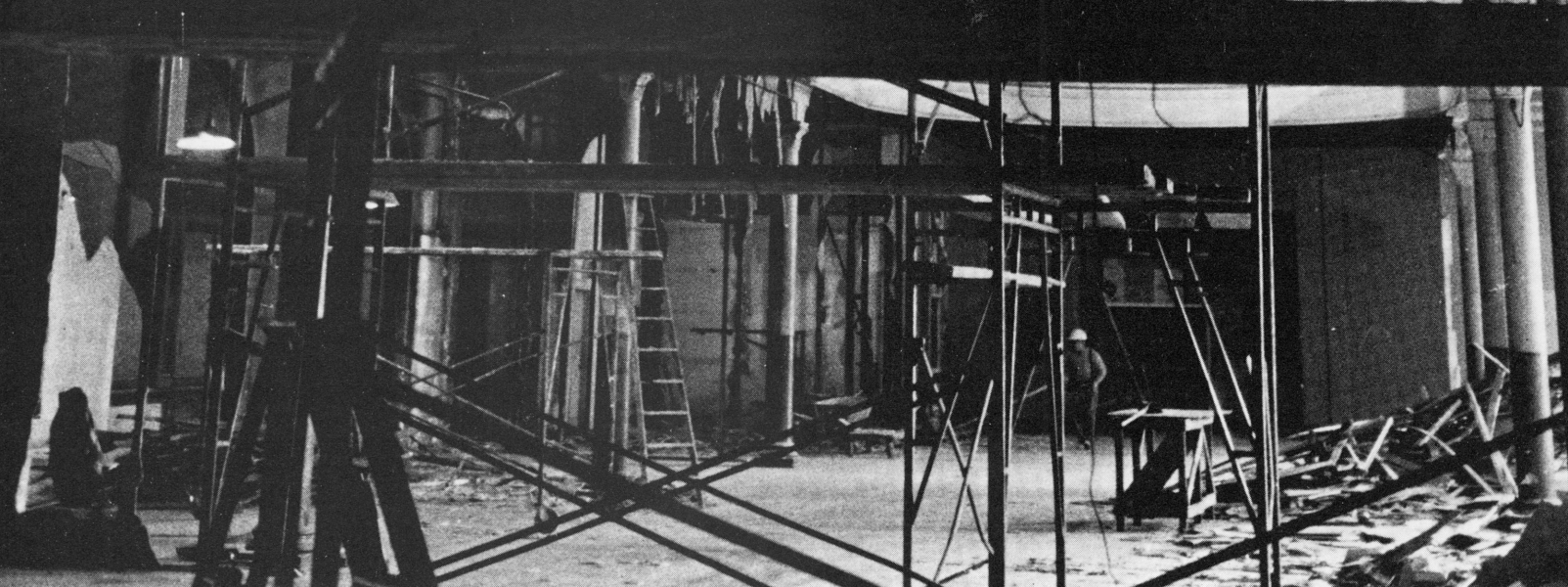
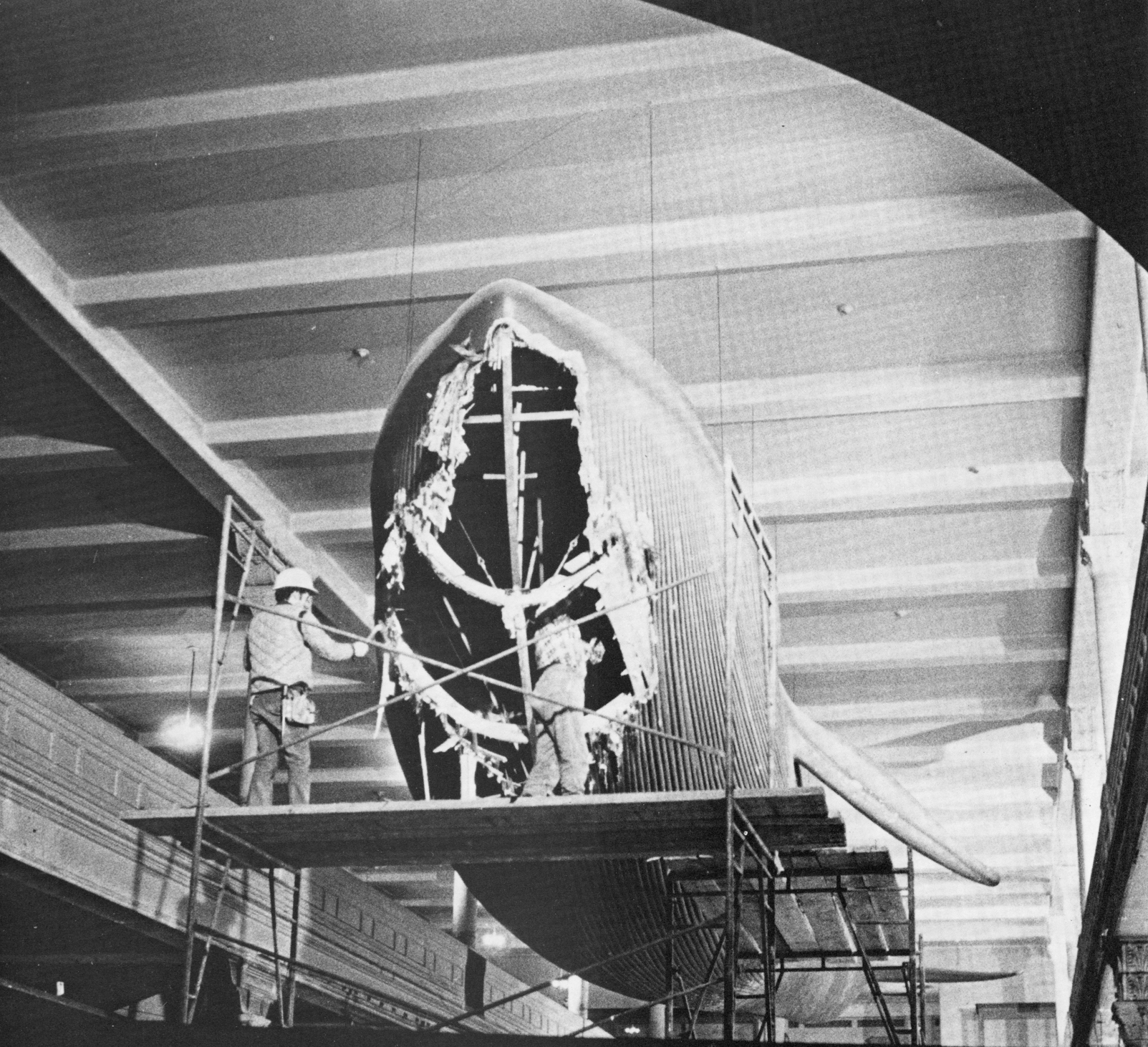
The research team monitoring the effects of environmental pollution on the tern colony of Great Gull Island is now summarizing the findings of the past five years for publication. Two new studies were also begun. Mr. Ronald Franck, a project assistant, color-banded resident populations of Common Yellowthroats for a study of their pairing behavior. Mr. Thomas Van't Hof, a student assistant, recorded the egg temperatures of Common and Roseate Terns during incubation. The period for netting migrants was extended to include September and October, and April and May.

Miss Helen Hays presented her paper on probable hybrids between Common and Roseate Terns at the annual meeting of the American Ornithologists' Union. The hybrids were discovered in the summer of 1972 and are the first ever reported.

The work on Great Gull Island has gained wide attention through such publications as "They Saved Our Birds," a book by Miss Helen Ossa of *Science Digest*, and "Vanishing Wildlife of North America," a volume put out by the National Geographic Society. Photographs by Miss Joan Black taken on the island are included as illustrations. Her work also appeared in a small Museum exhibit, "Discovering Terns," which was shown in the spring.

Mr. Robert Stephenson, a volunteer who is in charge of maintaining the island's facilities, supervised repairs on buildings and equipment during three weekends in the fall.

Helen Hays, *Chairwoman*



Dr. and Mrs. Thomas D. Nicholson (left) admired television personality Jim Fowler's harpie eagle at a Museum party in November. At the same affair Vice-President William T. Golden (right) helped guests examine a blow-gun from the Peruvian Montaña.



#### **KALBFLEISCH FIELD RESEARCH STATION HUNTINGTON, LONG ISLAND, NEW YORK**

There were significant changes in the operation of the station in its sixteenth year. Due to reduction of support from the National Science Foundation for the Museum's Undergraduate Research Participation Program, no college students were in residence. Dr. Wesley E. Lanyon, who is now Chairman of the Department of Ornithology, will continue to serve as Resident Director, but will no longer live at the station throughout the year.

Maintenance and operation of the station will continue at a level sufficient to support staff members engaged in current long-term research programs. However, it is anticipated, at least for the present, that no new long-term projects will be initiated, and there will be no resident student training program. As current projects reach their objectives, the station will be re-evaluated in terms of projected utilization and other factors. This policy has already resulted in a reduction of expenses and a substantial reduction in the deficit accrued since 1969 as a result of capital construction. The deficit is expected to be completely

eliminated by the end of the next fiscal year.

Four Museum curators continue their research projects at the station. Dr. Lanyon is investigating the succession of breeding bird populations in relation to plant succession in artificially managed and controlled study areas. The data from two more breeding seasons will bring to seventeen the number of years that the station's bird populations have been monitored. Dr. Lanyon is also at a critical stage in his program of breeding and hybridizing captive meadowlarks. The pattern emerging from these unique studies is one of hybrid sterility, but larger samples are needed.

Dr. Richard G. Zweifel is researching the growth patterns, reproductive biology and movement between ponds of the painted turtle. He is also involved in a comparative study of garter snakes when they begin and end their hibernation periods.

Dr. Donn E. Rosen is completing a long-term study of the reproductive biology and ecology of two species of fishes, the egg-laying medaka and the live-bearing mosquitofish. Dr. Richard G. Van Gelder is investigating the succession of small mammal populations in relation to plant succession.

Mr. Robert Madden, a graduate student in the Evo-





lutionary Biology Program, completed a four-year study of home range and orientation in the box turtle for his Ph.D. dissertation. Two other students in the program, which is jointly sponsored by The City University of New York and the Museum, continued to use the station for doctoral research. Mrs. Jacalyn Madden is working on a study of the behavior and ecology of the southern flying squirrel, and Mr. David Ewert is examining the function of song in the Rufous-sided Towhee.

Wesley E. Lanyon, *Resident Director*

### **LERNER MARINE LABORATORY BIMINI, BAHAMAS**

Use of the laboratory by senior investigators continued at a level comparable to last year in spite of grant restrictions on field work in foreign countries and the decreasing availability of research funds in general. The laboratory hosted numerous student groups during the year, and in the spring it accommodated the first high school group. Despite the Museum's intensive program to increase use of the

facility, this field station still faces severe financial problems, and active ways are being sought to solve them.

Research by senior investigators included the work of Dr. Joseph D. Fenstermacher of the National Cancer Institute, who is comparing the physiology and pharmacology of drug transport systems in various elasmobranchs. His efforts have led to the establishment of new guidelines for chemotherapeutic treatment of brain tumors in human beings. Dr. Leon Goldstein of Brown University made a return visit to continue his investigation of drug metabolism in marine fishes. He has found strong evidence to suggest that a major enzyme system in sharks is the same as one that occurs in mammals.

Dr. M. Michael Sigel continued his study of immune responses in marine fishes. Dr. William F. Herrnkind of Florida State University pursued his analysis of the migratory patterns of spiny lobsters. The latter project has great economic potential for the fishing industry of the Bahamas and Florida.

Drs. C. Lavett Smith and James C. Tyler continued their study of coral reef fish ecology, discovering a new species of goby fish on a search dive off the

Four museum professionals who are members of minority groups took part in a six-month training program in museum technology and administration. Mr. Harry Walters, who is Curator of the new Museum of Navajo Culture in Chinle, Arizona, took time from the program to demonstrate sand painting in the People Center.

coast of Bimini. Other work at the laboratory included a search for anti-cancer agents in marine organisms, geological studies of the commercially-important carbonate sands located south of Bimini, underwater sound transmission and fluctuation analyses, behavioral and ecological studies of numerous invertebrate groups, a survey of the land plants of Bimini and a study of local spiders.

Dr. Robert F. Mathewson retired after thirteen years of service and became Resident Director Emeritus. He began a highly successful teaching program for undergraduate students in tropical marine biology and was in charge of the redesigning and rebuilding of the laboratory after it was seriously damaged by tropical storms during the 1960's. An electrophysiologist, Dr. Mathewson specialized in research on the sensory physiology and ecology of marine animals, particularly sharks.

Dr. James C. Tyler was appointed Resident Director. A new house for the Resident Director was purchased south of the laboratory on Queens Highway in Alice Town.

James C. Tyler, *Resident Director*

### **SOUTHWESTERN RESEARCH STATION PORTAL, ARIZONA**

The total number of visitors rose to 696, an increase of over 100 from last year. Many were returning for their third and fourth visits, and their research covered a wide range from animal behavior studies to

biogeographic surveys.

Thirty scientific papers based on work at the station were published. Mr. Vincent D. Roth and Miss Wynne Brown, station assistant, worked together on a revision of the North American Homalonychidae spiders. They also expanded their survey of the fauna inhabiting the intertidal zone of the Gulf of California to include insects as well as arachnids. Mr. Roth continued compiling a catalog of nearctic spiders and revising the spider genus *Cesonia*.

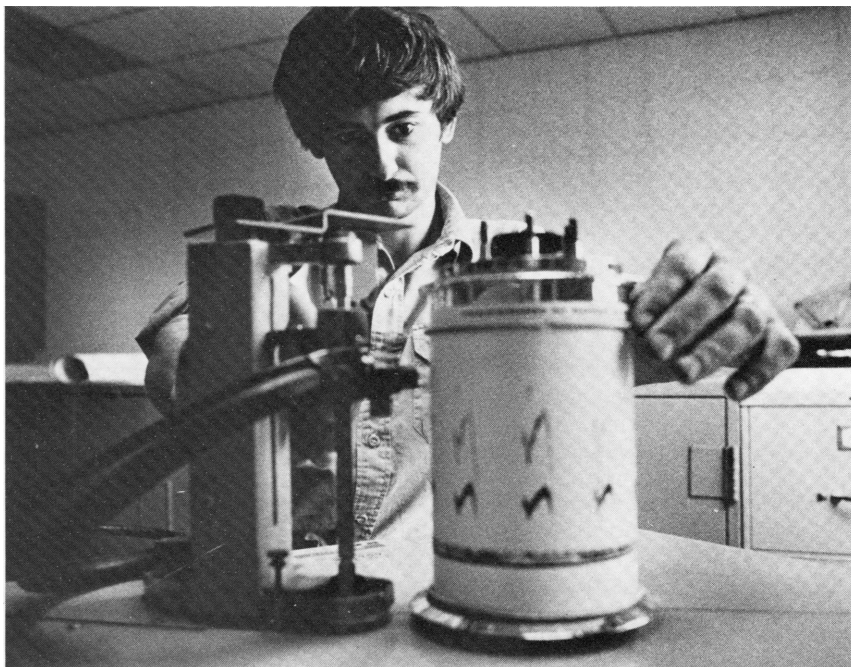
Dr. John Pinto of the University of California at Riverside returned to continue his analysis of sexual behavior in blister beetles. Dr. Marian Ellen Blank Vinegar of the University of Michigan compared the life histories of three closely-related allopatric lizards.

Drs. George and Kathleen Eickwort of Cornell University worked on the biology of the bee genus *Diadasia*. They obtained data on the nest structure of two species of this genus, and on the host-attack behavior of a previously unstudied, cleptoparasitic bee genus, *Protepeolus*.

Mrs. Joan Ehrenfeld, a doctoral candidate at City College (New York) studied the ecological interactions between plants and solitary bees of the genus *Euphorbia*. She used a tape recorder and movie camera to record her observations of foraging behavior.

Eighty-six bird study skins were obtained, providing the station with an almost-complete collection of vertebrates of the Chiricahua Mountains. Forty species of insects were also added, along with 300 miscellaneous specimens.

Vincent D. Roth, *Resident Director*



Dr. Hans Winkler, Chapman Fellow, analyzes woodpecker vocalizations with the aid of the audiospectrograph in the Department of Ornithology's graduate laboratories.







P.T. Barnum gave his elephant's name to the English language and its skeleton to The American Museum of Natural History. Jumbo went back on exhibition at the beginning of the circus season in April.

## DEPARTMENT OF EDUCATION

With the opening of the Alexander M. White Natural Science Center, the department completed renovation of public teaching facilities occupying its second-floor wing, which is also the site of the Calder Laboratory and the People Center. The Natural Science Center, with its focus on the nature of New York City, is a permanent exhibition designed for young people. In the coming year, both the Natural Science Center and the People Center will provide learning experiences for more than 150,000 weekend visitors. These facilities also serve as classrooms for instructional programs offered to New York City school-children.

Through the long-established programs, "The World We Live In" and "Exploring Man and Nature," members of the department taught nearly 50,000 school-age visitors this past year. Among these were some 2000 handicapped pupils. More than a thousand other students benefited from short courses taken through their schools on weekdays or independently on weekends.

Programs for professional and lay adults continued as a major activity. Nearly 800 New York-area teachers took college-accredited courses at the Museum last year. Approximately 1700 adults participated in the evening lecture series; thousands more attended film programs presented twice a week in the Auditorium or took part in slide and gallery talks.

Traditional services continued to be strengthened by the teaching-intern program, through which visitors are served directly by interns stationed in several anthropology halls. Visitor contact with education personnel was further enhanced by an expanded volunteer corps which, among a variety of services, staffed information desks and provided guide service for many school groups.

With support from foundation grants, the department's community-oriented activities were highlighted by two Education Gallery exhibitions, "Impressions of Haiti" and "Children of Africa." Among a number of special programs, free classes for young people in a church-owned Harlem brownstone and a Museum-based series of bilingual classes for French and Spanish speaking pupils were notably effective.

Among programs providing educational services outside the Museum, one of the most effective is conducted by the circulating exhibits section. Although handicapped by a reduced staff, the section continued to deliver more than 1400 small exhibits to several hundred schools. In addition, Museum lecturers brought artifacts and slide presentations to school assemblies, hospitals, libraries and sheltered workshops. The entire range of these programs, including such diverse activities as field study tours to East Africa and South America and morning bird walks in Central Park, established the Museum's educational presence far beyond its walls.

Malcolm Arth, *Chairman*

The "Children of Africa" live today in many countries. Their various cultures, as expressed through art and music, were the basis for an exhibition staged by the Education Department in Education Gallery.



## DEPARTMENT OF EXHIBITION AND GRAPHICS

More than a year of planning and construction brought to completion the Alexander M. White Natural Science Center, a unique, permanent teaching facility of the Department of Education. It was designed by Mr. Henry Gardiner, who executed many innovative features introduced by Miss Catherine M. Pessino, the Center's supervisor. The topical exhibits, several of which invite visitor participation, deal with aspects of New York City's natural and man-made environment. These include a vacant lot, a sidewalk colony of ants, a neighborhood store, underground communication and power systems, a wide variety of plant and animal life and other informative displays which are proving to be popular with the Center's young visitors.

This year saw the re-establishment of the Corner Gallery in newly-designed quarters on the fourth floor. "Where There's Life: Central Park Awakens," a multiscreen presentation produced for the Museum by Motiva, Ltd., was the opening presentation. Other shows utilizing the Gallery's versatile audio-visual equipment are being planned with the possibility of repeat showings and exchange of audio-visual presentations with other institutions.

A new departure in the area of temporary exhibitions is the creation of the flexible Museum Showcase concept, exemplified by exhibitions such as "Jumbo" and "The Nature of Minerals." This plan permits special material to be displayed for periods lasting longer than a month based on interest and appeal.



Mr. Joseph M. Sedacca and his staff of graphic artists have become increasingly involved in the creation of temporary exhibitions, including "Museum Treasures in Needlepoint," "A Naturalist and His Artists" and "Birds in the Wood," all in Gallery 77. This work is in addition to the normal workload of producing announcements, calendars and brochures for various departments in the Museum. They also designed the interior of the new Rare Book Room.

Two other temporary exhibitions, designed by Mr. Eugene B. Bergmann, were "Curassows and Related Birds" and "Lerner Marine Laboratory: Window to the Sea."

In the Hall of North American Birds, work was begun on a diorama for a Wood Ibis habitat group. For this setting, Mr. Raymond H. deLucia, Chief Preparator, and Mr. Matthew Kalmenoff, retired Principal Preparator, made a collection trip to Florida in 1973.

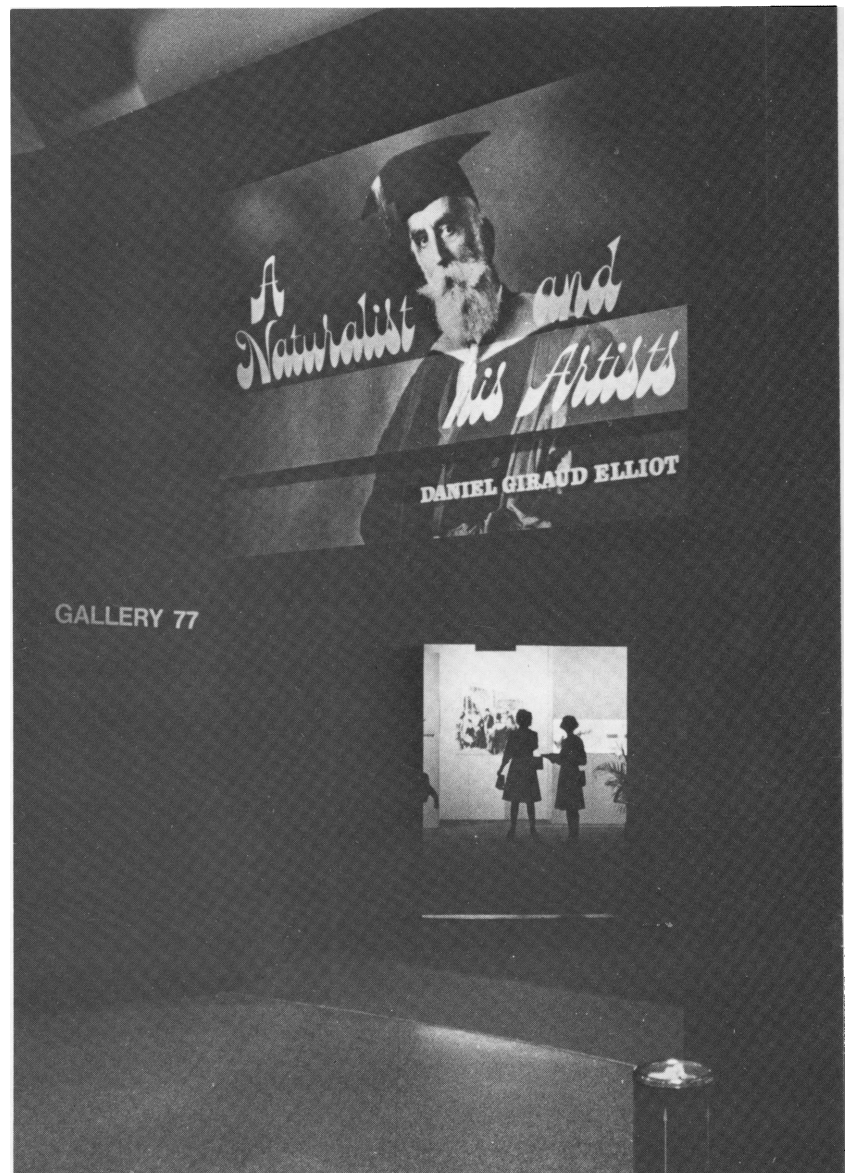
Designers and preparators are making progress on the Hall of Reptiles and Amphibians, the Hall of Minerals and Gems and the Hall of Mollusks and Mankind. "Human Variations," the final section of the Hall of the Biology of Man, is scheduled for completion by the end of 1974.

George S. Gardner, *Chairman*

## LIBRARY

The Library's major achievement was the completion and opening of the handsomely-designed room housing the Rare Book and Manuscript Collection. Adjoining it, a permanent exhibition area displayed a volume of the Audubon Elephant folio, "Birds of America," and selected drawings, photographs and unpublished diaries of Ernest Thompson

The distinctive animal art commissioned by 19th Century naturalist Daniel Giraud Elliot was exhibited in Gallery 77.







Museum visitors could not believe these birds in an exhibition were not real. Carved from wood, and then delicately singed and painted by Messrs. Gilbert Maggioni and Grainger McKoy, they were one of the highlights of the exhibition year. At left, a Wood Duck flies through autumn foliage in a marshy woodland. Lower left, Gadwall Ducks are flushed out of a stubblefield. Lower right, a Green-winged Teal sets its wings for a landing in a patch of reeds.








While many new halls are being installed in the Museum, the venerable and popular exhibitions from the 1930's and 1940's are being refurbished. The delicate task of cleaning the cheetah habitat group in the Akeley Hall of African Mammals is performed by Mr. John Gillespie. New labels with the most recent information about the state of African wildlife have been placed in the hall.

At right, a wooden mask-like helmet made by the Tlingit Indians of North America. The helmet, displayed in the Hall of Northwest Coast Indians, is one of a million artifacts in the anthropological collections of the Museum.

The new halls to be opened within the next few years include Reptiles and Amphibians, the Sun, Minerals and Gems, Mollusks and Mankind and Peoples of Asia.





A dramatic photograph of a Red-tailed Hawk in flight against a dark, textured background. The hawk is shown from the side, with its wings spread wide, revealing intricate patterns of brown and tan feathers. Its head is turned sharply to the left, and its beak is open. Its talons are extended, and it is firmly grasping a long, slender tail feather from a pheasant. The pheasant's tail feathers, which are light brown with dark spots, are visible in the lower left corner of the frame. The lighting is focused on the hawk, highlighting the texture of its feathers and the sharpness of its talons.

A Red-tailed Hawk grabs for a pheasant, but gets only a few feathers from the fleeing bird's tail. The photographs on these pages were taken by Assistant Managing Editor Margaret Nichols for the cover story in the November, 1974, issue of *Field and Stream*.





*Natural History* Magazine brought the natural sciences into 337,000 homes throughout the country. The November issue, with a large special supplement on the Metro Forest, disclosed that an urbanized form of the Great American Forest is slowly returning to the Northeast. *Natural History* said these verdant areas in metropolitan sites often go unnoticed and unused.



The water colors and manuscripts of Daniel Giraud Elliot are part of the Library's Rare Book Collection.

Seton. The collection was further represented in Gallery 77 by an exhibition of paintings and other art commissioned by the naturalist Daniel Giraud Elliot. Mrs. Alfred Lee Loomis, Jr., a Museum Trustee, who contributed financially to the Rare Book Room project, also participated in its preparation. Mr. Lee Ash, Library consultant, continued his survey of the Library's and Rare Book Room's holdings.

The Library's collection was expanded: 760 books, 222 serial titles and 16,103 serial issues were added and 906 volumes were bound. Approximately 500 old maps were replaced, missing maps were re-ordered and 300 maps were added to the collection.

The Library served 9080 readers, circulated 61,764 items and answered 6750 reference questions. As a New York State Interlibrary Loan subject referral center, the Library filled 3553 interlibrary loan requests.

Several important gifts were received. Among pub-

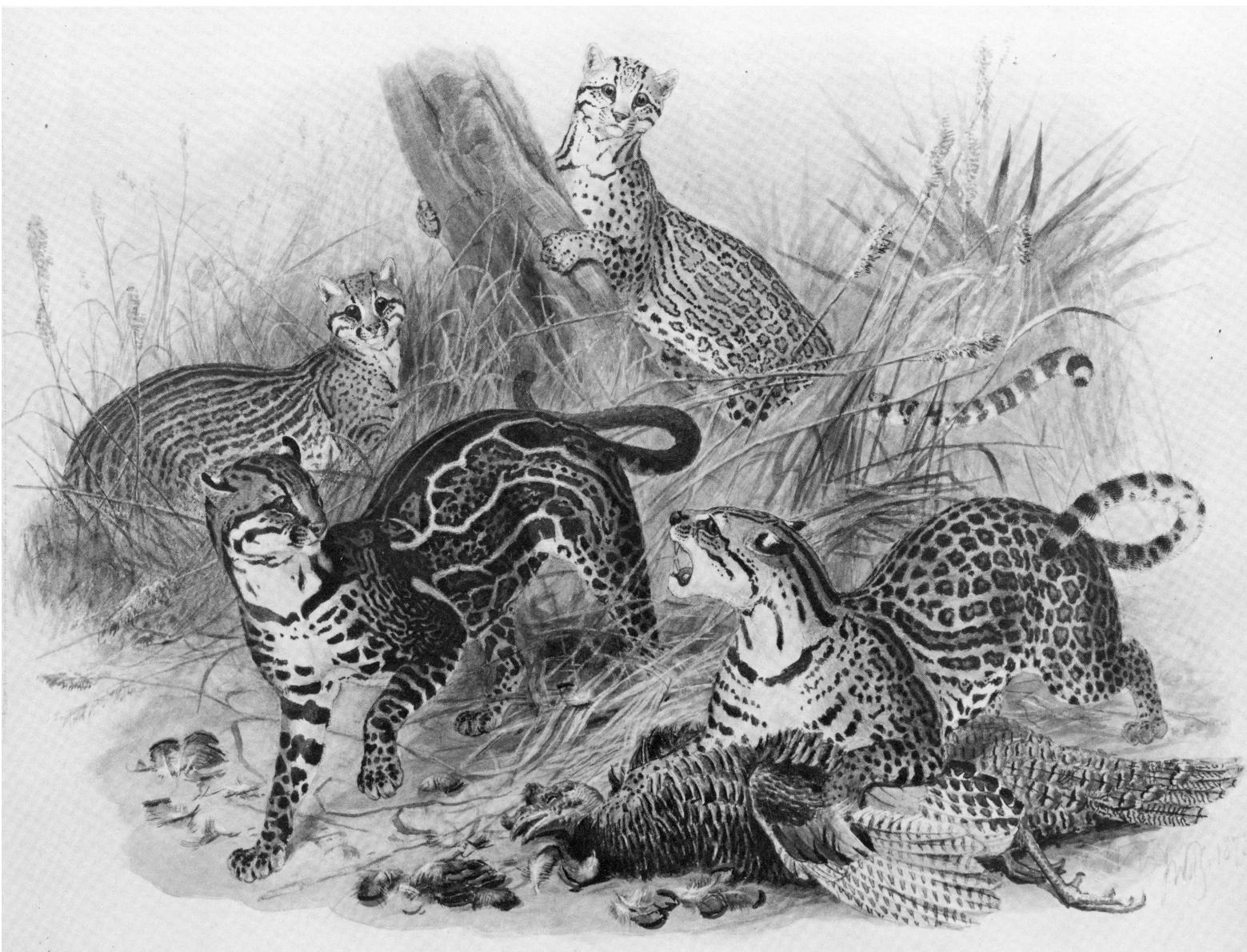
lications donated by Mrs. H. P. Davison were "Foreign Field Sports, Fisheries," London, 1819, and "A Breath from the Veldt," by John G. Millais, second edition, London, 1899. The Emperor of Japan donated a work titled "Sagamiwan san keiseirui, the Sea-Stars of Sagami Bay," by Ryoji Hayashi, Tokyo, Seibatsugaku Gokenyujo, 1973. *Natural History Magazine* contributed recent books to the collection.

Nina J. Root, *Librarian*

## PUBLICATIONS

### *Curator*

Six issues of *Curator*, the quarterly journal of the Museum, were published during the year, the latest being Vol. XVI, No. 4. A special issue (XV, 4) con-



The Rare Book Room was opened in November in a handsome circular tower on the Museum's fourth floor. Here guests admire the exceptional collection of priceless natural history books and manuscripts.

sisted of a comprehensive index by author, title and subject, to the magazine's past fifteen years. With the help of the grant from the Museum Aid Program, *Curator* has been actively soliciting subscribers through mailings and advertisements. The articles in *Curator*, of high caliber and great interest, continue to enrich all the professions in the museum field.

Thomas D. Nicholson, *Editor-in-Chief*

### **Scientific Publications**

The Office of Scientific Publications published a combined total of 29 papers by the scientific staff of The American Museum. Seventeen articles were printed in *American Museum Novitates* and twelve in the *Bulletin of The American Museum*. In addition, three bulletins for the Department of Ichthyology were reprinted by popular demand.

Of the 29 new papers printed, Anthropology contributed 2; Entomology, 10; Herpetology, 1; Ichthyology, 3; Invertebrate Paleontology, 2; Living Invertebrates, 2; Mammalogy, 4; Ornithology, 3; Vertebrate Paleontology, 2. Fine line drawings and photographs accompanied all the articles, providing visual information to accompany the text.

The two journals added to the literature descriptions and figures of seven new genera, 70 new species, eight new subspecies, one new superfamily and one new family. This year saw the publication of a major monograph on *Rhadinaea*, a genus of New World snakes, which took ten years for the author to produce.

Beginning in July, 1974, the scientific serial publications will appear in a new format.

Florence Brauner, *Editor*

### **DEVELOPMENT AND COMMUNICATIONS**

Programs initiated during the year produced rewarding successes in communications with Museum constituents. The Museum spoke to its members through *Natural History Magazine* and through a new series of trips and tours, to laymen interested in anthropology through a group of evening lectures graciously presented by Dr. Margaret Mead, and to the general public through news coverage of Museum events. Effective communication with the chief executive officers in the corporate world continued to generate support for the Museum. This year, through the annual corporate drive, the Office of Development succeeded in adding 50 more corporations to those who contributed to this important program.

#### **Natural History Magazine**

The hallmark of a successful magazine is an editorial vision that anticipates and explains important developments in the field it covers. Fulfillment of that vision requires publication of material that promotes

a deeper understanding of the subject. Acceptance as a vital communications link in the dialogue between peoples about their environment is the reward of successful editorial direction. Increased circulation and advertising revenue usually follow such acceptance. By all of these criteria, *Natural History* has continued to increase its stature as a leading periodical in its field.

The scope of the magazine's traditional coverage was broadened through such contemporary, and controversial, stories as those dealing with heroin addiction, man and marijuana, race and intelligence, and the conflict between fundamentalists and evolutionists. In a lighter, yet significant, vein, the progress of Comet Kohoutek was followed by astronomers, and the behavior of dogs and the dangers of tanned skin were reported by experienced observers of societal mores.

The increasing demand for scientific information that can shed light on the human condition dictated that attention be directed to human ecology, particularly in urban environments. "The Metro Forest," a special supplement dealing with the effect of vegetation upon city man, helped realize this need. The relationship between urban birds and architecture was also explored. Articles on the ecology of schistosomiasis, pellagra and the flora and fauna of the lower intestinal tract of man, brought to *Natural History* a marriage of biochemistry and medical science with cultural anthropology.

The *Natural History Magazine* Color Photography Competition made a reappearance, and the response was extraordinary. Nearly 30,000 transparencies were received for judging. The winners were published in the August-September issue. The contest and a Museum exhibition of winning photographs are planned again for next year.

Considerable attention was paid to the improvement of management systems, with significant results during the year. Both circulation and advertising increased. The average circulation of *Natural History* to associate Museum members increased by ten percent, reaching 337,000 with the May issue. Both total advertising pages and advertising revenue were higher than last year.

#### **Membership**

An aggressive management program of planning and control was effective in bringing *Natural History* to Museum members at the least possible cost. This, together with increases in membership, has helped to raise substantially the contribution made toward support of Museum operations by the membership program. Net income from membership increased by 26 percent over the preceding year.

Museum members also continued to enjoy free admission to the Museum and to the Member's Lounge, now staffed by volunteers as well as by the Membership Secretary. Several programs for family and other





The Building Services Department acquired a new outdoor sweeper, shown here at the 77th Street entrance. It eliminates most of the need for hand sweeping leaves and other debris.



higher members were held, and there were also programs for children of members. A new tour program for members, which got off to an excellent start, is described in the Development report below.

### **Development**

The gap in the Museum's budget—between income and expenses—has necessitated the creation of a stronger and broader program in financial development. The office has concentrated on annual contributions from private sources, and raised in the fiscal year \$743,104 for Museum operations. The Museum maintains two active programs in annual giving. The Men's and Women's Committees—volunteer committees of 121 and 123 members, respectively—continue to play their important role in raising contributions from individuals. Also, the program of corporate support on an annual basis was conducted successfully for the second year.

The business community, in demonstration of its belief in the significance of the Museum's work, contributed \$250,337, a 27 percent increase over their help in the preceding year, and nearly 500 percent more than had been contributed from such sources in any prior year. This is the result of the concentrated work of a committee of 37 business leaders under the chairmanship of Mr. Howard L. Clark, a Trustee of the Museum and Chairman and President of the American Express Company. Next year Mr. Thomas J. Watson, Jr., Chairman of the Executive Committee of the International Business Machines Corporation, will lead the effort.

In addition to these programs, special projects during the year included a benefit auction conducted by the Women's Committee in association with the Men's Committee. For the first time, the Museum undertook a benefit scientific tour for its membership—a cruise in the Adriatic Sea to study the cultural anthropology of Yugoslavia, the archeology of Greece and celestial navigation. Administered by the office, this project was an unqualified success, and will be, it is hoped, only the first of a long series. The office also conducted a benefit lecture series—three evenings with Dr. Margaret Mead. As with the membership cruise, the lectures were oversubscribed.

In the area of capital giving and contributions for specified purposes, the Museum's Centennial Capital Drive, undertaken in 1969, continues toward its \$25,000,000 goal. The office has been particularly successful in the past year in convincing corporations to fund special projects. For example, St. Joe Minerals Corporation led a program to raise corporate contributions from mineral companies to help in the construction of the new Hall of Minerals and Gems. The International Paper Company Foundation agreed to underwrite the construction and operation of a new Environmental Information Center, a facility for making this information generally available to the public. Minnesota Mining and Manufacturing Company and



Deere and Company have made substantial gifts-in-kind—equipment and materials of which the Museum was in need. It is a principal task in the coming year to make known to corporate donors some of the Museum's specific needs.

### **Public Affairs**

Public Affairs continued to provide information and services to the public outside and within the Museum, including services in support of many projects described elsewhere in this report, such as the Margaret Mead lecture series.

A broad range of media coverage included a *Parade Sunday Magazine* (20,000,000 circulation) story on Dr. C. Lavett Smith's studies of coral reef fish communities. Other media attention—press and broadcast, national and local—centered on West Side Day; the dismantling of the old sulphurbottom whale; exhibitions on cockroaches, on needlepoint designs inspired by American Indian artifacts from the Museum's collections and on wood carvings of birds of the South Carolina coastal region; the opening of the Alexander M. White Natural Science Center; and other Museum events.

Ogilvy & Mather, the advertising agency, produced and placed a one-minute film spot about the Museum, which was repeatedly shown by all local television stations. They also produced posters used in local commuter train stations and in buses with routes throughout the five boroughs.

Guest Services coordinated and executed numerous special events, including receptions and formal dinners sponsored by the Museum and by outside groups. With the advent of the energy crisis, evening

programs were limited to three days per week. The bimonthly *Calendar of Events*, prepared by Guest Services, was given broad distribution to visitors and members. A recorded telephone service dispensed Museum information to nearly 79,000 callers. The Cafeteria served some 750,000 visitors and employees, and approximately 328,000 visiting schoolchildren were served in the school lunchrooms.

As can be seen, Development and Communications activities lead to many different kinds of contacts between the Museum and its constituents. Some such contacts, especially those in Development, have had outstanding success, and there is particular satisfaction to be derived in the generation of income to meet the operating expenses of this institution. It is a major cause of gratification to all those concerned that these efforts bring increased excitement and involvement on the part of so many people associated with the Museum.

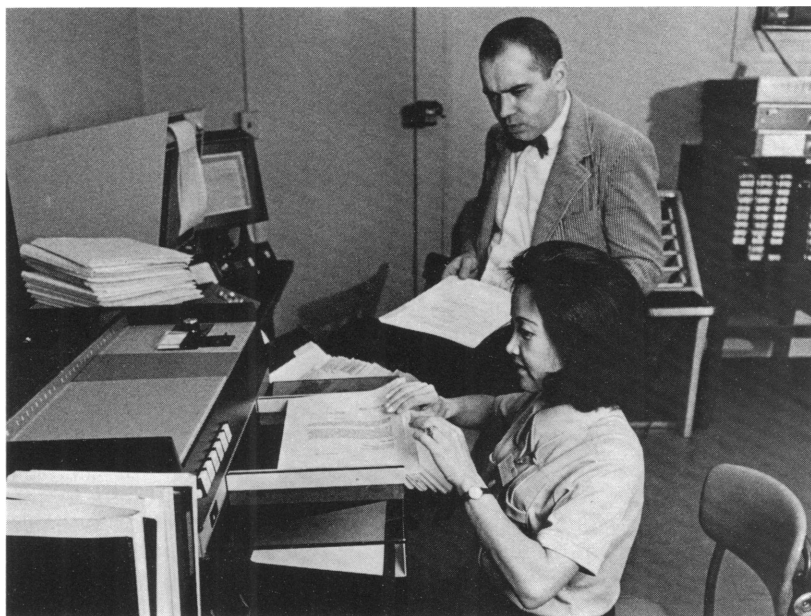
David D. Ryus, *Vice-President*

## **ADMINISTRATION**

### **Building Services**

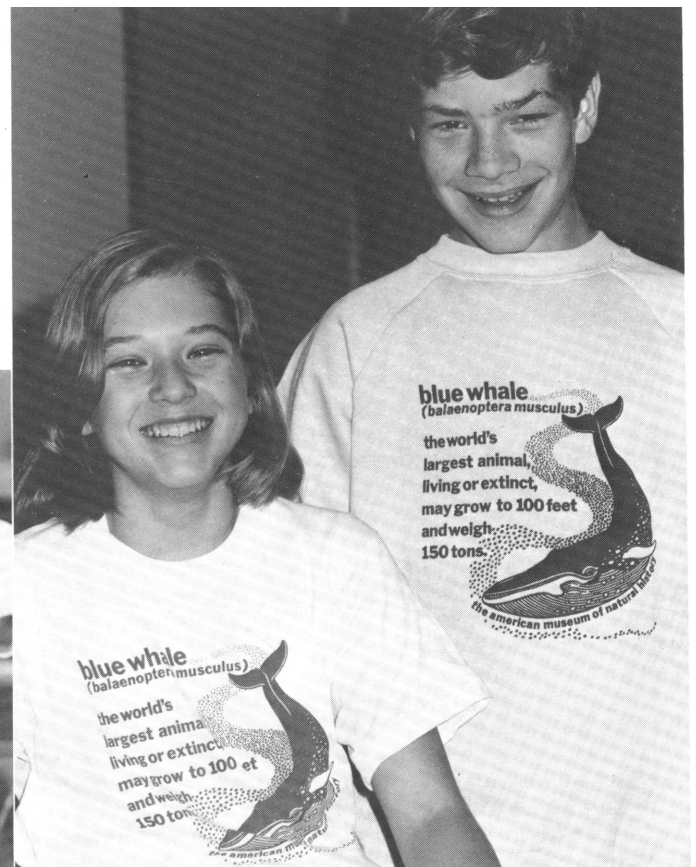
Continuing surveys and evaluations of security as it affects the Museum are being conducted in order to provide better protection for visitors, employees, and physical resources. A major step resulting from these efforts was the installation of a system of heat and smoke sensors in all offices and storage areas, a system that links these areas to a 66-zone detection panel in the master control room. This control center also houses television surveillance, radio communi-

Mrs. Lucy Shih, General Services, and Mr. Russel Rak, Library, transfer the Museum's archives to microfilm in a program to preserve and reorganize these valuable historical materials.





The fossilized jaw of a kangaroo was among specimens collected in South Australia in 1970 by a joint American Museum-Smithsonian Institution-South Australian Museum expedition. Here Dr. Thomas H. Rich uses a blow torch to clean it.



cation and electrical and electronic intrusion alarm systems, all installed in recent years and expanded during this year. Another significant security step this year was the development of a perpetual inventory system for the myriad of building keys issued.

Recognizing the importance of security as a function of this department, its Manager, Mr. Charles L. Miles, and the Deputy Director for Administration, Mr. Charles A. Weaver, Jr., completed an intensive course in security management at the New York City Police Academy. The results of this experience will affect future programs.

Much time was devoted to testing and selecting cleaning preparations and equipment. These efforts resulted in cleaner wall and floor surfaces and more efficient use of the cleaning forces. The contractual cleaning of public and non-public areas has been expanded by an additional 45,000 square feet.

#### **Office of the Controller**

Continued efforts were made to expand the reporting, budgeting and auditing functions at the Museum. Internal statements have been refined to include budget comparisons on a time-phase basis as well as comparison with previous years' activities, the format of the yearly statement has been revised to enable readers to understand it more readily, the budget operation has been expanded to cover both the salaries and expenses of special funds and grants and the payroll time sheet has been recast so that it can be used more efficiently. In addition, the office has made a thorough study of the bookkeeping system used by the Museum in its general ledger operation and has recommended major changes in equipment and internal statement format.

#### **General Services**

Under the management of Mr. John Hackett, the

General Services Department provides such administrative services as telephone, mail room, printing, offsetting, stationery supplies, archives, central files, accession files, mailing lists, shipping and receiving and the maintenance of the various copying machines throughout the Museum.

During the past year the mail room handled over 900,000 pieces of incoming mail and 1,000,000 pieces of outgoing mail; telephone operators handled 200,000 calls.

The archives and central files are presently being transferred to microfilm under a grant provided by The New York State Council on the Arts and with equipment donated by the 3M Company.

#### **Museum Shops**

The Museum Shops' management team—Mr. Martin Tekulsky, Manager/Buyer; Mrs. Eleanor T. Forbes and Mr. Joseph J. Battaglia, Assistant Managers; Miss Carol Crane, Buyer; and Mr. Richard Gubitosa, Weekend Supervisor—has aimed at increasing the variety and quality of the merchandise offered in the shops. Their efforts have been successful in producing greater sales volume. A large amount of time was devoted to the development and review of plans for a major renovation and enlargement of the main shop on the first floor near the 77th Street entrance. The new shop is expected to open in November.

#### **Personnel**

Last summer the department, under the direction of Miss Joanne D. McGrath, initiated an informal but comprehensive indoctrination program for all new employees. Eligible employees are enrolled in the Museum's benefits plan and informed of policies and regulations. An exit interview program was also initiated and it is hoped that this, together with a turnover study which is in progress, will assist in

The blue whale was featured on a successful line of shirts sold by the Museum Shop. The Shop's clientele comprises visitors to the Museum and people who buy by mail through advertisements in *Natural History Magazine*.

placement, defining training needs, determining supervisory effectiveness and pin-pointing conditions which may have an adverse effect on employee morale. A centralized system of reporting equal employment opportunity information was developed and implemented; this relieves Museum departments of the burden of furnishing annual data for this purpose.

Because of the Administration's continuing interest in the health and safety of employees, and to assure compliance with laws affecting occupational safety and health requirements, the Museum's safety policies, procedures and practices were strengthened. A new safety program was designed to place greater priority on safety at all levels of responsibility. It provides for a reporting system by which the effectiveness of the new program can be judged.

The number of employee recipients and the amounts of tuition support granted through the Frederick M. Warburg Scholarship Fund more than doubled during the program's second year. Of significant interest was the wider range of studies undertaken by a broader group of employees, which included attendant guards, craftsmen, executives, professionals, secretaries and technical personnel representing 53% of the Museum's departments and offices.

### **Photography**

Important progress was made during the year on a project to replace black-and-white nitrate negatives with contact prints and copy negatives on safety film. Eleven thousand have been converted to date and the remaining 24,000 will be converted by November.

During the year publishers of trade books, encyclopedias and other publications paid the Museum for the right to produce 1279 black-and-white prints and 212 color transparencies. The department also sold 15,390 color slides from its files to universities, high schools, elementary schools and individuals.

### **Plant Operations, Construction and Maintenance**

This department operates and maintains heating, ventilating, air conditioning, plumbing and lighting systems in a complex consisting of 20 interconnected buildings with more than one million square feet of space. A great deal of knowledge and ingenuity is required to keep these complicated systems functioning properly. Significant procedural improvements have been achieved by Mr. Walter F. Koenig, Manager of Construction and Maintenance, in the relamping program, particularly for exhibition spaces. In cooperation with the Building Services and Exhibition and Graphics Departments, a lighting and glass cleaning surveillance team has made periodic recommendations which have been implemented successfully. Improved lighting was also installed in the Planetarium Plaza, the Visitors' Parking Lot and the various courtyard areas. These changes have resulted in greater security for the Museum's visitors, employees and

buildings. Considerable improvement of the staff rest rooms, particularly on the fifth floor, was accomplished. Some modifications were made in the ventilating systems for various public spaces, which will relieve heat build-up during the summer months. During last fall's energy crisis, the Museum instituted new controls on the use of purchased steam which resulted in significant savings without noticeable discomfort to visitors or employees.

Renovation and improvement of scientific and administrative spaces continued in Education, Ichthyology, the Library, the Museum Shop storage area and various other smaller spaces. The department assisted in the installation of the Rare Book Room and the construction of the Alexander M. White Natural Science Center.

Exterior structural repairs funded through the capital budget of the City of New York included replacement of storm water drains in seven buildings, pointing of masonry and replacement of coping stones in four buildings, and roofing and flashing work in four buildings. A major section of the stone retaining wall bordering the park was replaced.

### **Projection**

Mr. Arthur L. Grenham became Manager, succeeding Mr. Joseph G. Abruzzo, who retired after 26 years of Museum service.

The Projection Department handled over 2,500 requests for service, including projecting films, repairing and setting up slide presentations, setting up audio systems, providing special stage lighting and producing audio tapes. These services were provided for various educational courses, lectures, performances and scientific and business meetings. Efforts were made to improve the audio-visual sections in the various exhibitions by upgrading the equipment.

This year also saw the first public use of video tape equipment in an exhibition. As part of the temporary exhibition, "Seeing the Unseen," in Gallery 77, the projection staff produced and edited a television tape showing the Museum's scanning electron microscope in use by members of the scientific staff. The video tape system used in preparing this exhibition was a gift from the Sony Corporation of America.

Charles A. Weaver, Jr.,  
*Deputy Director for Administration*

### **ATTENDANCE**

During the year, 1,766,069 persons visited the Museum and 478,973 (including 450,485 paid admissions) visited the Planetarium, making a total attendance of 2,245,042.





The financial condition, results of operations, and changes in fund balances of The American Museum of Natural History are summarized in the statements on the following pages. These statements were examined and reported upon by Coopers & Lybrand, the Museum's independent auditors.

Expenses during 1973-1974 were \$13,384,044 and income was \$13,063,628. While expenses increased by \$1,005,193 (8.1 percent) from the prior year, income increased by \$1,309,960 (11.1 percent). The increase in expenses, which were held to budgetary limits, largely represents rising costs that reflect general economic conditions. The higher income resulted from an increase in the appropriation from the City of New York, from greater revenues in the Museum's membership program and in auxiliary activities (other income), and from greater interest and individual returns from invested funds.

The excess of expenses over income in Current Funds, representing the results of both the General Fund and the Special Funds operations, was \$320,416 as compared to \$625,183 in the prior year. These figures, for both fiscal years, are further affected by transfers between funds, authorized by the Board of Trustees, as shown in the Statements of Changes in Fund Balances on page 45. The deficit of the General Fund after transfers was \$174,754, as compared to \$234,918 in the previous fiscal year, and will be funded by a transfer from the Endowment Funds during 1974-1975. With respect to Special Funds, the excess of expenses over income for the current year's operations and the fund balance, after transfers between funds, represent activities carried on during the fiscal year that were funded, in some cases, by contributions and grants received in prior years, or that may continue to be funded in future years.

The allocation of expenses to major museum functions and the sources of income during the year are illustrated in the charts below. The chart of expenses

varies little from past years, and it shows that 68 percent of the Museum's funds were expended in direct support of scientific research, education, exhibition, and membership services, with the balance going toward functions that were indirectly in support of these programs. The figures shown in the income chart show the percentages of Museum income derived from various sources, public and private. These percentages also reflect little variation from prior years.

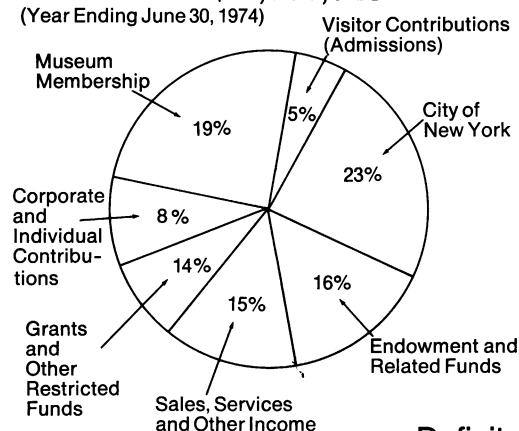
The Endowment Funds' investments are carried at cost and a comparison of the investments' cost and market values as at June 30, 1974 and 1973 is indicated in the Notes to the Financial Statements on page 47. While the Endowment Funds' balance declined during the year by \$7,149,654 to \$45,127,464 at year-end, the market value of the Funds' investment portfolio decreased from \$51,697,669 at the beginning of the year to \$42,891,573 at year-end. This decrease in the Endowment Funds and their investment portfolio reflects to a great extent a depressed securities market.

Financial planning and management in the Museum are being carried out in full awareness of the effects of the sharply rising costs that are evident in our society at the present time and of the decline in value of investment portfolios, both in the Museum and in general. While the need for continuing conservatism in light of present financial conditions is evident, current operations have not been adversely affected. Efforts to offset rising costs through increased income have been successful thus far. These efforts, aimed at stimulating the growth of on-going and the development of new revenue sources, will continue to be an important element in our ability to meet the Museum's future financial needs.

Frederick A. Klingenstein,  
Treasurer

### Total Income: \$13,063,628

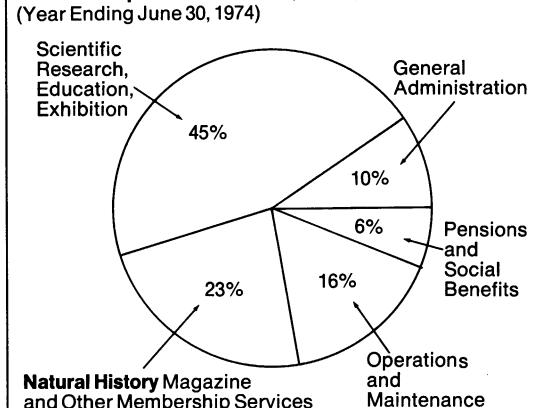
(Year Ending June 30, 1974)



The most unusual holiday tree in town rose high in the Rotunda during the Christmas season. Museum employees and friends folded 1500 colored pieces of origami in shapes of animals ranging from protozoans to dinosaurs.

### Total Expenses: \$13,384,044

(Year Ending June 30, 1974)



Deficit: \$320,416

**AUDITORS' REPORT**

The Board of Trustees,  
The American Museum of Natural History,  
New York, N.Y.

We have examined the balance sheet of THE AMERICAN MUSEUM of NATURAL HISTORY as of June 30, 1974, the related statements of income and expenses of current funds and changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We previously examined and reported upon the financial statements for the year ended June 30, 1973.

In our opinion, the aforementioned financial statements present fairly the financial position of The American Museum of Natural History at June 30, 1974 and 1973 and the results of its operations for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

*Coopers & Lybrand*

1251 Avenue of the Americas  
New York, New York  
September 4, 1974.



# FINANCIAL STATEMENTS AS OF JUNE 30, 1974 AND 1973

## THE AMERICAN MUSEUM OF NATURAL HISTORY BALANCE SHEETS, JUNE 30, 1974 AND 1973

	1974					1973
ASSETS:	Current Funds		Endowment Funds	Pension and Frick Employees Retirement Funds	Total	Total
	General Fund	Special Funds				
Cash	\$ 42,383	\$ 11,384	\$ 254,409	\$ 195,535	\$ 503,711	\$ 1,283,526
Certificates of deposit	1,726,799	2,423,201	478,287	1,915	4,150,000	2,799,573
Receivable from sale of securities					480,202	136,695
Accounts receivable, less allowance for doubtful accounts of \$37,261 in 1974 and \$45,239 in 1973	293,766	240,517			534,283	464,522
Due from City of New York	167,266				167,266	127,385
Due from other funds	3,697	28,525			32,222	398,331
Investments in marketable securities (Note 1)		9,813	44,740,713	7,306,198	52,056,724	60,005,647
Planetarium Authority bonds (Note 2)		425,000			425,000	425,000
Museum shop inventory, at cost	107,327				107,327	176,667
Prepaid expenses	180,952				180,952	127,002
	<u>\$2,522,190</u>	<u>\$3,138,440</u>	<u>\$45,473,409</u>	<u>\$7,503,648</u>	<u>\$58,637,687</u>	<u>\$65,944,348</u>
LIABILITIES and FUNDS:						
Accounts payable and accrued liabilities	\$ 480,892	\$ 495,724	\$ 313,723	\$ 2,367	\$ 978,983	\$ 750,458
Payable for securities purchased			32,222		313,723	150,860
Due to other funds					32,222	398,331
Unearned membership income	2,216,052				2,216,052	2,083,546
Funds:						
General Fund (deficit)	(174,754)				(174,754)	(234,918)
Special Funds (Note 3)		2,642,716			2,642,716	2,055,157
Endowment Funds (Note 4)			45,127,464		45,127,464	52,277,118
Pension Fund (Note 5)				7,003,267	7,003,267	7,953,576
Frick Employees Retirement Fund				498,014	498,014	510,220
	<u>\$2,522,190</u>	<u>\$3,138,440</u>	<u>\$45,473,409</u>	<u>\$7,503,648</u>	<u>\$58,637,687</u>	<u>\$65,944,348</u>

The accompanying statement of significant accounting policies and notes are an integral part of these financial statements.

**STATEMENTS OF INCOME AND EXPENSES OF CURRENT FUNDS  
FOR THE YEARS ENDED JUNE 30, 1974 AND 1973**

	1974			1973
	General Fund	Special Funds	Total	Total
<b>Income:</b>				
Appropriation from the City of New York	\$3,055,654		\$ 3,055,654	\$ 2,695,593
Gifts, bequests and grants	821,456	\$1,955,833	2,777,289	2,796,015
Interest and dividend income	1,673,173	426,705	2,099,878	1,762,906
Visitors' contributions		700,189	700,189	725,485
Museum membership	2,494,023		2,494,023	2,289,904
Other income	1,312,353	624,242	1,936,595	1,483,765
Total income	9,356,659	3,706,969	13,063,628	11,753,668
<b>Expenses:</b>				
Educational activities	2,392,809		2,392,809	2,278,615
Exhibition halls and exhibits		920,865	920,865	604,314
Natural History Magazine	3,148,034		3,148,034	2,778,355
Other special purposes program and projects		2,633,952	2,633,952	2,790,957
General administrative expenses	1,104,763	190,498	1,295,261	1,318,546
Plant operating and maintenance expenses	2,238,188		2,238,188	1,898,822
Pension and other social benefit expenses (Note 5)	594,952	159,983	754,935	709,242
Total expenses	9,478,746	3,905,298	13,384,044	12,378,851
Excess of expenses over income	(\$ 122,087)	(\$ 198,329)	(\$ 320,416)	(\$ 625,183)

The accompanying statement of significant accounting policies and notes are an integral part of these financial statements.



**STATEMENTS OF CHANGES IN FUND BALANCES  
FOR THE YEARS ENDED JUNE 30, 1974 AND 1973**

	Current Funds				Endowment Funds		Pension and Frick Employees Retirement Funds	
	General Fund		Special Funds		1974	1973	1974	1973
	1974	1973	1974	1973				
Balance (deficit), beginning of year	(\$234,918)	(\$907,463)	\$2,055,157	\$1,823,170	\$52,277,118	\$51,255,163	\$8,463,796	\$12,268,947
Additions:								
Gifts, bequests and grants					1,088,127	1,143,123		
Interest and dividend income							295,648	332,252
Net profit (loss) on sales of investments					(7,228,038)	1,448,917	(493,942)	715,154
Other income								30,371
Total additions					(6,139,911)	2,592,040	(198,294)	1,077,777
Deductions:								
Excess of expenses over income, as annexed	122,087	251,233	198,329	373,950				
Payments to pensioners and beneficiaries							500,050	551,515
General administrative expenses					106,150	108,049	45,710	51,780
Past service contributions to CIRS (Note 5)							153,915	4,211,954
Total deductions	122,087	251,233	198,329	373,950	106,150	108,049	699,675	4,815,249
Transfers between funds:								
Financing of:								
1973 General Fund deficit	234,918	907,463			(234,918)	(907,463)		
Special Funds activities			656,804	542,501	(656,804)	(542,501)		
Other								
Total transfers	(52,667)	16,315	129,084	63,436	(11,871)	(12,072)	(64,546)	(67,679)
Balance (deficit), end of year	182,251	923,778	785,888	605,937	(903,593)	(1,462,036)	(64,546)	(67,679)
	(\$174,754)	(\$234,918)	\$2,642,716	\$2,055,157	\$45,127,464	\$52,277,118	\$7,501,281	\$ 8,463,796

The accompanying statement of significant accounting policies and notes are an integral part of these financial statements.

**STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES**

The land and buildings utilized by the Museum (most of which are owned by the City of New York), fixed assets (which are charged off at time of purchase), exhibits, collections and the library are not reflected in the balance sheet.

Purchased investments are recorded at cost and investments acquired by gift or bequests are recorded at market quotations at the dates of acquisition.

A portion of membership dues is allocated to Natural History Magazine and recognized as income ratably over the membership term.



1. Cost and market quotations of investments at June 30 are as follows:

	1974		1973	
	Cost	Market	Cost	Market
Special Funds	\$ 9,813	\$ 10,000	\$ 9,398	\$ 10,000
Endowment Funds	44,740,713	42,891,573	51,597,689	51,697,669
Pension and Frick				
Employees Retirement Funds	7,306,198	6,715,458	8,398,560	8,268,943
	<u>\$52,056,724</u>	<u>\$49,617,031</u>	<u>\$60,005,647</u>	<u>\$59,976,612</u>

The Museum's investments consist of the following:

	1974		1973	
	Cost	Market	Cost	Market
Certificates of deposit and commercial paper	\$ 8,114,999	\$ 8,112,248	\$ 4,137,910	\$ 4,109,734
Bonds	13,946,589	11,743,515	14,343,233	12,956,955
Preferred stock	1,030,987	1,024,100	1,064,582	1,059,375
Common stock	28,964,149	28,737,168	40,459,922	41,850,548
	<u>\$52,056,724</u>	<u>\$49,617,031</u>	<u>\$60,005,647</u>	<u>\$59,976,612</u>

2. The investment in bonds (\$570,000 principal amount) of The American Museum of Natural History Planetarium Authority is carried at cost. The financial statements of the Planetarium, which is operated under the supervision of the Museum, are annexed. Interest income of \$25,650 received from the Planetarium in the years ended June 30, 1974 and 1973 is included in other income of the General Fund.

3. The balances at June 30, 1974 and 1973 of Special Funds (funds which are received or appropriated for specific purposes) are net of overdrafts of certain of these funds of approximately \$290,000 and \$488,000 respectively. These overdrafts represent expenditures in anticipation of transfers from Endowment and/or General Funds or receipt of gifts and grants.

4. Endowment Funds (including funds functioning as Endowment Funds) are summarized as follows:

	1974	June 30	1973
Endowment Funds, income available for:			
Restricted purposes	\$21,819,078		\$22,871,247
Unrestricted purposes	8,322,180		8,839,443
Funds functioning as endowment,			
principal and income available for:			
Restricted purposes	2,530,887		3,456,375
Unrestricted purposes	12,455,319		17,110,053
	<u>\$45,127,464</u>		<u>\$52,277,118</u>

5. All eligible employees of the Museum are members of the Cultural Institutions Retirement Systems Pension Plan (CIRS). The Museum has agreed to contribute \$5,362,282 to CIRS, representing the past service cost applicable to such employees, of which \$153,915 and \$4,211,954 were paid in fiscal 1974 and 1973, respectively. The remaining past service cost, including interest, will be funded over a period of 19 years in annual installments of approximately \$88,000. Employees who retired prior to June 30, 1971, or their beneficiaries, will continue to receive benefits from the Museum's Pension Fund.

In April 1973, the Management Board of the Museum designated that the Pension Fund be divided into an "A" fund, equal in amount to the present value of the actuarial liability for pensions due to retired employees, and a "B" fund, consisting of the balance of the Pension Fund. At June 30, 1974 the "A" fund amounted to \$4,490,835 and the "B" fund to \$2,512,432. Each year an amount equal to five percent of the average balance of the "B" fund is to be used to fund the amortization of the past service liability to be paid CIRS and certain other related expenses, and any remainder of such five percent is to be transferred to the general fund as a reimbursement of the normal cost of the CIRS plan.

Normal cost of the CIRS Plan was approximately \$301,000 and \$312,000 for fiscal 1974 and 1973, respectively.

**AUDITORS' REPORT**

The Members of The American Museum of Natural History Planetarium Authority,  
New York, N.Y.

We have examined the balance sheet of THE AMERICAN MUSEUM of NATURAL HISTORY PLANETARIUM AUTHORITY as of June 30, 1974 and the related statement of income, expenses and deficit for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We previously examined and reported upon the financial statements for the year ended June 30, 1973.

In our opinion, the aforementioned financial statements present fairly the financial position of The American Museum of Natural History Planetarium Authority at June 30, 1974 and 1973 and the results of its operations for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

*Coopers & Lybrand*

1251 Avenue of the Americas  
New York, New York  
September 4, 1974.



<b>ASSETS:</b>	1974	1973	<b>LIABILITIES:</b>	1974	1973
Cash:			Accounts payable	\$ 100,366	\$ 122,562
Demand deposits	\$ 74,856	\$ 272,819	4½ % Refunding Serial Revenue bonds, past due (Note 2)	570,000	570,000
Time deposits	5,879	27,905	Accrued interest, past due	315,450	315,450
Accounts receivable	40,441	10,417		985,816	1,008,012
Inventory (publications and souvenirs), at cost	25,688	26,918			
	<u>146,864</u>	<u>338,059</u>	<b>CONTRIBUTED CAPITAL, FUNDS AND DEFICIT (Note 5):</b>		
Equipment, fixtures, etc.:			Contributed capital:		
Zeiss planetarium instrument, at cost	221,928	221,928	Charles Hayden	156,869	156,869
Less, Allowance for depreciation	(52,715)	(41,615)	Charles Hayden Foundation (Note 3)	429,455	429,455
	<u>169,213</u>	<u>180,313</u>	The Perkin Fund (Note 3)	400,000	300,000
Furniture, fixtures and equipment	1	1		986,324	886,324
	<u>169,214</u>	<u>180,314</u>	Trust Agreement Fund	2,500	2,500
Buildings, at cost (Note 3)	1,019,210	784,788	Guggenheim Foundation Fund (Note 1)	7,195	30,313
	<u>\$1,335,288</u>	<u>\$1,303,161</u>	Deficit, as annexed	(646,547)	(623,988)
				349,472	295,149
				<u>\$1,335,288</u>	<u>\$1,303,161</u>

The accompanying statement of significant accounting policies and notes are an integral part of these financial statements.

**STATEMENTS OF INCOME, EXPENSES AND DEFICIT**  
**FOR THE YEARS ENDED JUNE 30, 1974 AND 1973**

	1974	1973
<b>Income:</b>		
Admission fees, less allowances and commissions	\$442,225	\$426,886
Auxiliary activity, sales booth	91,013	83,867
Special lectures and courses	29,976	34,297
Other income and grants	82,726	47,237
Total income	<u>645,940</u>	<u>592,287</u>
<b>Expenses:</b>		
Preparation, presentation and promotional	256,435	255,931
Operation and maintenance	170,951	180,008
Auxiliary activity, sales booth	71,736	69,687
Special improvements	51,530	
Administrative and general	32,107	27,884
Pension fund, social security and other		
employee benefits (Note 4)	48,990	56,039
Total expenses	<u>631,749</u>	<u>589,549</u>
Income before interest and depreciation	14,191	2,738
Interest on past due 4½ % Refunding	(25,650)	(25,650)
Serial Revenue bonds	(11,100)	(11,100)
Provision for depreciation (straight-line method)	(22,559)	(34,012)
Net loss for year	623,988	589,976
Deficit, beginning of year	<u>\$646,547</u>	<u>\$623,988</u>
Deficit, end of year		

The accompanying statement of significant accounting policies and notes are an integral part of these financial statements.



## **STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES**

The Planetarium's corporate charter terminates when all its liabilities, including bonds, have been paid in full or otherwise discharged. At that time, its personal property passes to The American Museum of Natural History and real property to the City of New York to be maintained and operated in the same manner as other city property occupied by the Museum. The land utilized by the Planetarium was donated by the City of New York.

The policy of the Planetarium is to capitalize only major additions and replacements of equipment, machinery and other plant items and to depreciate such items over their useful lives. Fully depreciated assets are carried at nominal value. Because of the nature of the ownership of the property, provision for depreciation of the buildings is considered unnecessary.

## NOTES TO FINANCIAL STATEMENTS

1. In fiscal 1972, the Daniel and Florence Guggenheim Foundation contributed \$188,000 to establish and maintain a space theatre at the Planetarium to replace the Copernican Theatre. Through June 30, 1974, \$180,805 has been expended on this project.
2. The Planetarium Authority bonds were purchased by The American Museum of Natural History in 1948. The Charles Hayden Foundation contributed \$200,000 to the Museum toward the purchase of such bonds.
3. During fiscal 1974, the Planetarium substantially completed construction of a new wing. This project was financed by contributions of \$50,000 from the Charles Hayden Foundation and \$400,000 from The Perkin Fund.
4. The Planetarium and its employees participate in the Cultural Institutions Retirement Systems Pension Plan. It is the Planetarium's policy to fund pension expense accrued. Pension expense for fiscal 1974 and 1973 was \$19,285 and \$26,997, respectively.
5. Changes in contributed capital and funds were as follows:

	Guggenheim Foundation Fund	Charles Hayden Foundation	The Perkin Fund
Balance, July 1, 1972	\$32,001	\$379,455	\$100,000
Contributions		50,000	200,000
Expenditures	(1,688)		
Balance, June 30, 1973	30,313	429,455	300,000
Contributions			100,000
Expenditures	(23,118)		
Balance, June 30, 1974	<u>\$ 7,195</u>	<u>\$429,455</u>	<u>\$400,000</u>

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- Fred C. Kennedy—1 tourmaline specimen.
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- Bryant Mather—A collection of specimens including 5,500 Lepidoptera, 170 Coleoptera, 100 Trichoptera and 4 Neuroptera.
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- Dr. William B. Muchmore—A collection of specimens including 23 holotypes, 18 paratypes and 4 pseudoscorpions (Arachnida).
- John D. Van Itallie—A collection of diamonds.







This model of an incubating python was cast from the first plaster mold ever made of a live snake. An exact replica of *Python molurus*, a southeast Asian species, the model was painted to match its live twin in every detail. Here Frederica Leser of the Exhibition Department completes the replication process. The model will appear in the forthcoming Hall of the Biology of Reptiles and Amphibians. For details, see the report of the Herpetology Department inside.