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ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 9, No. 1 January 1984



The space shuttle Columbia stands tall against the Florida sky.

Research at Zero-g

Tuesday, January 17, 7:30 p.m. Auditorium, \$2.50 for Members, \$5 for non-members.

Last November, Columbia transported Spacelab, the European Space Agency's reusable spaceborne laboratory, into orbit for the first time. Spacelab is similar to laboratories on earth but it is especially adapted for experiments at zero gravity.

During the mission, the Spacelab was used to perform experiments dealing with solar physics, astronomy, materials science, human physiology, and earth and atmospheric observation.

Members are invited to join crew

members of the Spacelab 1 mission as they present a firsthand report of the accomplishments of this pioneering voyage. Using slides and "home movies," they will describe what it was like to be aboard the space shuttle. They will also present preliminary results of some of the experiments performed during the mission, including the x-ray and ultraviolet observations of deep space targets, the mapping of the Amazon basin's drainage system, investigations of crystal growth at zero gravity and human adaptation to

weightlessness. The program will conclude with a look at the potential uses of Spacelab in future scientific research.

Research at Zero-g marks the inauguration of a period of cooperation between the Hayden Planetarium and the American Institute of Aeronautics and Astronautics, which will make the Planetarium New York's public center for space information.

Please use the coupon on page 2 to order tickets. After January 10, please call (212) 873-1327 for reservations.

Slow and Steady

Turtles may be slow, but did you know that some of them can figure out a maze as well as a white mouse can? Join Michael Klemens of the Herpetology Department for a medley of slides and facts about these fascinating reptiles. By the end of the program, you will know why a tortoise is always a turtle but a turtle is not necessarily a tortoise.
Page 3

A Course of Course

Whether you are more interested in people, plants, insects or objects, there may be a course for you within. Members have an opportunity to register early for the Department of Education's spring classes and field trips, many of which have limited enrollment.
Pages 5, 6, and 7

Oasis Cities

Art treasures found in abandoned Central Asian cities reflect international trade routes known as Silk Roads which flourished over 2,000 years ago. Members are cordially invited to the opening of *Silk Roads*, an exhibition featuring the history and archeological finds of these ancient trade routes, which linked the world powers of Rome and China through Iran.
Page 9

Wonderful Sky

Images of Big Bird, the Cookie Monster, and other Sesame Street Muppets inhabit the sky and teach about its many wonders. Children aged 3 to 6 will sing along with their favorite muppets and learn about day, night, star constellations, and whether or not the full moon is really a big cookie.
Page 3

Ice Age Hunters of America: A Symposium

Wednesday, January 11, 7:30 p.m. Main Auditorium
Members, \$12.00, non-members, \$15.00

As the glaciers that covered North America began to recede at the close of the Ice Age, vast freshwater lakes filled present day deserts in the Western United States. Forests and meadows began to spread, supporting a strange population of now extinct animals including giant bison, mastadons, and woolly mammoths. Bands of Paleo-Indian people ranged the continent, hunting these beasts with only stone and bone weapons.

A mammoth kill was a windfall for these hunters, providing a mountain of meat that could mean the difference between subsistence and plenty for a small tribe. An entire band, including women and children, might participate in a massive winter bison kill.

A herd would be driven down slippery, hard-packed slopes into a snow-filled streambed, where the floundering animals would be killed by hurled spears and rocks.

Recently uncovered archaeological kill sites have given scientists a better idea of the complex social organization and production-like butchering methods employed by these Paleo-Indians over ten thousand years ago. In a symposium to be held at the Museum, four noted archeologists will discuss their research into the history of Ice Age people, their migration to the New World, hunting technology and subsistence strategies.

The participants will be Dr. Richard MacNeish, Professor of Archeology at Boston Uni-

versity; Dr. Donald Grayson, Associate Professor of Anthropology at the University of Washington; Dr. Dennis Stanford, Associate Curator of North American Archeology at the National Museum of Natural History, Smithsonian Institution; and Dr. Howard Winters, Professor of North American Archeology at New York University. Each participant will speak on a different aspect of Paleo-Indian existence. Dr. MacNeish will be the moderator, and questions from the audience will follow the discussion.

For ticket availability, please call the Department of Education at (212) 873-7507.

Tickets go on sale the night of the symposium at 6:30 pm.



Ray C. Anderson. Courtesy of the National Geographic Society

Members' Memo Highlights of 1984

This year promises to be one of the most exciting in the Museum's history, and I'd like to take this opportunity to give you a preview of some of the outstanding programs and exhibitions we will offer.

The year begins with a visit by two members of the recent Spacelab 1 Mission who will give a personal account of their dramatic voyage (see article, page 1).

In February, *Silk Roads/China Ships* will arrive from the Royal Ontario Museum in Toronto. The exhibit of 400 artifacts will illustrate the more than 12 centuries of commerce in goods, technology and ideas that flowed between the Orient and the West. Members will be invited to a special opening (see page 9) and the Department of Education, as part of its Adult Afternoon and Evening Lecture Series, will present leading Asian scholars who will discuss the exhibit (see the complete course supplement in this issue).

In March, Lewis Thomas, President of the Sloan Kettering Institute and renowned author, will present the *Man and Nature* lectures. He will take a look at human development from an evolutionary perspective.

Human evolution will continue to be a major focus at the Museum in April when we open *Ancestors: Four Million Years of Humanity*. The exhibition, organized by the Museum, brings together for the first time more than 50 of the most important fossils that document human evolution. Many of the fossils have never

left their "home" countries, and have never been on public display before. Two weeks before the exhibition opens, scholars from around the world will gather at the Museum to attend symposiums and make side-by-side comparisons of the material. Noted anthropologists such as Donald Johanson and F. Clark Howell will present public lectures, and Members will have an opportunity to attend previews of the exhibit.

In the fall, *Asante: Kingdom of Gold*, exclusively loaned to us from the British Museum of Mankind, London, will open at the Museum for a six-month stay. The exhibition vividly displays the power and splendor of this great 19th-Century West African Kingdom. The highlight of the exhibition will undoubtedly be the spectacular and intricate gold castings created by the royal goldsmiths.

The year concludes with the opening of the Margaret Mead Hall of Pacific Peoples.

I've described some of the highlights; there will, of course, be other exhibitions and programs dealing with many other areas of the natural world. Please check *Rotunda* every month for complete details and registration coupons.

Best wishes for a Happy New Year!

Henry H. Schulson

ROTUNDA

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Research at Zero-g. Tuesday, January 17 Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$2.50. Associate Members are entitled to one. All other tickets are \$5.00.

Number of Members' tickets	X \$2.50	\$
Number of non-member tickets	X \$5.00	\$
Total amount enclosed:		\$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Research at Zero-g, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.



Life in a Hard Shell

Sunday, January 29, 1:30 and 3:30 p.m., Kaufmann Theater,
Free and open only to Members.

One brightly colored Asian turtle screams to alarm its predators. A sea turtle which grows up to six feet long is known to migrate nearly a thousand miles yearly, possibly approaching the Arctic Circle. A snapping turtle of the American Southwest that commonly weighs several hundred pounds, has a very effective feeding strategy: it sits calmly submerged in water with its great jaws wide open, dangling a little worm-like papilla in its mouth to lure hungry fish.

In this family program for

turtle lovers aged eight and up, Michael Klemens of the Department of Herpetology will use beautiful slides and collection samples to present colorful and unique turtles from all over the world. He will survey the reproductive behavior, survival strategies and unique characteristics of both exotic and local turtles, with an emphasis on the latter. Our own continent has many distinguished contenders, including both the smallest and largest freshwater turtles in the world.

Whether from New York

State or Southern Asia, all turtles have shells. A turtle's shell, which is actually part of its backbone, has provided adaptive advantages which have helped turtles survive roughly 200 million years. To name just a few possible advantages of going about with your ribs on the outside, a shell may provide camouflage, help absorb sunlight as a turtle basks, frustrate a hungry predator, and offer protection from grass fires.

In spite of these and other adaptations, turtles are facing a hard time in the modern

world. Many large turtles which are now extinct once swam in the seas and moved slowly upon the land. Millions of years ago giant tortoises roamed the Great Plains along with the enormous ground sloth and other prehistoric animals.

Today habitat loss, commercial turtle harvesting, and climatic changes, combined with the relatively late age at which turtles reach reproductive maturity (up to 15 years for some species) have taken a heavy toll. Turtle soup, tortoise shell glasses and pretty

pets are obtained at a great cost which cannot be measured in dollars and cents.

The conservation of these fascinating reptiles is of great concern to Mr. Klemens. He will discuss his own conservation work with the localized bog turtle, offering suggestions and insights into the survival problems and conservation of other species as well.

Live turtles will be on display at the program, as well as some of the equipment used by scientists to live-trap and mark them.

To order tickets, please use the adjacent coupon.



Life in a Hard Shell, Sunday, January 29 This program is open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to four tickets. Associate Members are entitled to one. All other tickets are \$2.00.

Number of tickets
1:30 p.m. 3:30 p.m.

Name:

Address:

City: State: Zip:

Daytime Phone:

Membership category:

Please mail with a self-addressed, stamped envelope to: *Life in a Hard Shell*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Muppets in the Sky

Saturday, February 25, 12:00 noon, Hayden Planetarium. \$2.50 for adults, \$1.00 for children. Open to Members only.

There is a wonderful sky up above, and you are invited to share its magic with the Sesame Street Muppets, at this special program for children aged three to six. A teacher-host will greet the children in the center of the Sky Theater, to be joined by images of Big Bird, Bert, Ernie, Grover, Cookie Monster, and their

other Sesame Street Friends.

During the program, children will answer questions and discover for themselves the wonders of the sky both during the day (as beautiful flowers warmed and nourished by the sun grow all around the Planetarium dome) and at night, long after Grover is fast asleep beside

his teddy bear.

This is a show which cannot go on without the audience's help. Children must count to three and say the magic word to make the sky turn blue. They must blow hard to help Super Grover move clouds across the sky.

Although clouds often forebode rain, there's no cause

for worry. From the comfort of his dented garbage can, the recalcitrant but charming Oscar sings a song in praise of rainy days. Afterwards a beautiful rainbow appears, and Big Bird, ever helpful, emphasizes the best way to find a rainbow.

At day's end the sun sets, and stars appear. The Count

(for who can count better than a Count?) assists everyone in counting the stars and tracing patterns in the sky.

Wonderful Sky was produced by the Planetarium in conjunction with Henson Associates, Inc. and the Children's Television Workshop.

To register, please use the coupon below.



Cookie monster flies past the moon, wishing it were a big cookie.

Wonderful Sky, Saturday, February 25

This program is open only to Members of the Museum and their guests

Number of children's tickets	X \$1.00	\$
Number of adults' tickets	X \$2.50	\$
Total payment enclosed.		\$

Name:

Address:

City: State: Zip:

Daytime Phone:

Membership category:

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Wonderful Sky*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

Urban Survivors

Summer in the city. Bees gather pollen and ladybugs dot the leaves. Autumn, and the starlings' dark feathers turn a spotted brown. Winter, and the mad autumn rush to collect acorns has paid off for the squirrels, who leap from branch to branch of naked trees. Spring, and birds are everywhere. Unlike many other animals who have fled cities for green meadows and dense woods, these are urban survivors.

There are other survivors too, like the pigeons who, lacking the cliffs of their ancient rock dove ancestors, roost and nest on ledge and rooftop. Overtaken garbage cans mark the energetic work of raccoons and opossum. In one heavily-used area of California, a pair of rare sharp-tailed snakes was found coiled underneath a discarded pair of underwear! And then there is, of course, that infamous immigrant from across the sea which even enthusiastic nature lovers tend to shun; aggressive in its ways and admirable in its success — *Rattus norvegicus*.

No list of urban survivors, however incomplete, should lack the most obvious urban species — *Homo sapiens*. This species is capable of loving opera, attending museums and finding food in supermarkets. Unfortunately this species, which exhibits a wide range of behavior patterns, is also capable of destroying the habitats of its fellow creatures, sometimes without a second thought.

Fortunately, several Museum scientists are among a growing number of people who, in conjunction with concerned groups, are helping to create management plans for urban parks and preserves. These plans can help ensure the survival of those animals who, with a little help from their friends, can share New York and other cities with us for generations to come.

One of the major urban areas presently being studied and aided by Museum scientists is New York City's Central Park, perhaps the most heavily used natural oasis in the midst of any city. Over 14 million people visited the park last year.

Designed to be an attractive and fashionable green space where urban dwellers could enjoy trees, flowers, birds and other wildlife, Central Park declined somewhat in midcentury due to abuse and misuse. Through the years, however, it has remained an area containing several types of habitats of key importance to animals; fresh water, grassland and woodland. In recent years people have begun to act on the realization that Central Park is too valuable a resource for the city to neglect, and funds are being made available to refurbish it.

In 1982 Michael Klemens (Herpetology) and C. Lavett Smith (Ichthyology) participated in an inventory of the park commissioned by the Central Park Conservancy. The inventory is being used to formulate a master plan for refurbishing the 126-year-old park over the next decade. Conservancy studies have thoroughly examined the vegetation, hydrology, wildlife, park sociology, and circulation patterns of park visitors.

Using turtle traps and nets, and turning over logs, stones and trash, Mr. Klemens located five species of amphibians and reptiles in the park. Unlike many other wildlife habitats, much of Central Park's fauna is not indigenous to the area. For example, one dominant turtle species is the red-eared slider, a common pet store variety. These turtles are released into the park by people who no longer want them. This particular species, though not native to the area, is able to survive. In sharp contrast, many tropical reptiles and amphibians released by pet owners cannot withstand our winters.

Native amphibians and reptiles in Central Park include the bullfrog, painted turtle and snapping turtle. The bullfrog (whose low foghorn-like summer mating call is familiar to many a park patron) and snapping turtle are reproducing in the park. This may indicate that aquatic habitats are the safest in this heavily used area. Mr. Klemens examined one exotic garter snake, but intensive searching failed to turn up additional specimens. He remains unsure whether these reptiles are a regular faunal component of the park.

One important find is that Central Park bullfrogs have developed unusual patternings slightly different from those of bullfrogs found elsewhere, no doubt due to inbreeding. "The park is a fascinating place to develop some evolutionary and ecological theories," says Mr. Klemens. "It is in many ways an island, because it is so isolated." He emphasizes the importance of the Museum's extensive herpetological collections as tools to study faunal changes



The bullfrog, *Rana catesbeiana*, is a steady inhabitant of Central Park's water system.



After being dragged slowly through the water, this seine net may contain scores of tadpoles, freshwater fishes, and perhaps a jellyfish or two.

which have occurred in the park over the past century. The collections can be of help in evaluating changes in the environment, both past and present, which have affected animal life. The resulting information can be useful in efforts to manage and increase species populations.

Dr. Smith, who has studied the park's ponds, has thus far captured nine species of fish. Introduced species such as guppies and goldfish seem to be surviving and breeding. He is still unsure whether the guppies live through our winters, or are reintroduced in the warmer months. Seven species of fish are native to the area and have breeding populations in the park, including the pumpkinseed, banded killifish and golden shiner.

Freshwater jellyfish have been observed in the medusa, or sexual stage. Although it is not unusual to find them in park ponds where plants have been introduced, Dr. Smith points out that jellyfish are somewhat puzzling in that they may be abundant one year yet not be seen again until several years later. This may be because they are microscopic in the non-sexual stage.

Both Dr. Smith and Mr. Klemens are among a number of Museum scientists who have given lectures and classes, and conducted field trips for groups of Urban Park Rangers. In this way the Museum serves as what Dr. Smith refers to as an "intellectual megaphone" by helping to instruct people involved in urban wildlife management, conservation, and education. The Rangers in turn pass this information on to the general public, educating people about the importance of preserving species habitats in urban settings. The Rangers offer special programs on park life throughout the city, and are also

involved in efforts to reintroduce native plant and animal species to the parks. The reintroduction of chipmunks to Central Park is one such project currently underway.

To make the management and maintenance of public spaces which can support wildlife successful, the public must cooperate. We can preserve these special areas by not collecting the flora and fauna, not introducing additional non-native animals into these environments, and not polluting them.

Museum visitors interested in learning more about wildlife habitats in New York City can visit the Natural Science Center located on the second floor, open to all Museum visitors Tuesday through Friday from 2:00 p.m. to 4:30 p.m., and on Saturdays and Sundays from 1:00 p.m. to 4:30 p.m. This Center is closed on Mondays.

The Center's exhibits focus on the natural history of the New York metropolitan region. It contains fresh and saltwater aquariums with fish, hermit crabs, and crayfish collected from local areas, as well as a snapping turtle from Central Park. A local American toad and spotted salamander (species which were once plentiful on Manhattan Island) also make their homes in Center terrariums.

Mr. Klemens has contributed several animals to the exhibits, including a spring peeper. This small tree frog, indigenous to the New York area, has fled from Manhattan, but continues to live in nearby forests and more rural parts of the city. These amphibians derive their name from the males of the species, who, in spring, especially at night and after rain, sing in loud choruses, searching for mates. Like all the creatures who share the earth — and the city — with us, they have an instinct and a right to survive.

The Department of Education Presents the Spring Afternoon and Evening Lecture Series

OBJECTS OF BRIGHT PRIDE REVISITED

Three Tuesday evenings starting February 21
7:00-8:30 p.m.

Fee: \$20 (\$18 for members.)

An introduction to the art of the Northwest Coast Indians with specific reference to the collections of the American Museum of Natural History.

Allen Wardwell, curator of the exhibition "Objects of Bright Pride" (1978) talks about art styles, use and significance of objects, the revival of the traditional arts on the northwest coast today, and the Museum's collection.

Feb. 21 — **TOTEM POLES WINTER CEREMONIES, POTLATCHES AND CREST DISPLAY**: The art that was made for declaration and assertion of status, and the maintenance of myth and tradition. Stylistic features, object types, and the decline and present day renaissance of art creation are discussed.

Feb. 28 — **SOUL CATCHERS, CHARMS, OYSTERS, CATCHERS, LAND OTTERS AND DEVIL-FISH**: Powerful objects made for the northwest coast shaman, their meaning, use and unique qualities. The making of a shaman and his role in northwest culture are described.

Mar. 6 — **LIEUTENANT GEORGE T. EMMONS, FRANZ BOAS, GEORGE HUNT, ISRAEL POWELL AND MORRIS JESUP**: A history of the way the American Museum acquired the finest collection of Northwest Coast Indian art in the world.

SILK ROADS • CHINA SHIPS

Three Tuesday evenings starting February 21
7:00-8:30 p.m.

Fee: \$20 (\$18 for Members)

Feb. 21 — **ARCHEOLOGY AND BUDDHISM IN THE SILK ROADS TRADE**. **Dr. Evelyn Nagai-Berthrong**, Curatorial Coordinator for the exhibit "Silk Roads - China Ships" for the Royal Ontario Museum in Toronto, describes the creation of the exhibition. Her richly illustrated lecture focuses on the role played by archeology and Buddhism in silk roads trade. In the first decades of this century, the spectacular discoveries of buried cities in Central Asia raised wide-reaching questions about their inhabitants, their origins, beliefs and customs. Were they exiled Byzantines? Their painting style seemed to suggest a connection with the late Roman world, yet the subjects were Buddhist.

Feb. 28 — **MYTHS AND LEGENDS OF THE SILK ROUTE**. **Edwin Bernbaum**, Asian Specialist and author of *The Way to Shambhala* explores various myths and legends of the silk route in relation to the history, culture, and religion of the area. He introduces the Chinese myth of the western paradise of the Immortals, Buddhist legends and prophecies of Khotan, Central Asian tales of sand-buried cities, Indian myths of the northern paradise of Uttarakuru, Kirghiz legends of Mt. Muz Tagh Ata, the Tibetan Epic of Gesar and the myth of Shambhala, and the legendary travels of Hsüan-tsang in historical accounts and in the Chinese novel, *The Journey to the West*.

Mar. 6 — **CHINA'S IMPACT ON THE WEST: CHINOISERIES IN THE 18TH CENTURY**. **Ross Edman**, Professor in the Department of History of Architecture and Art at the University of Illinois at Chicago, discusses how trade with China delighted Westerners and challenged European ingenuity and commerce before the Industrial Revolution. For a time, European textile and ceramic production were threatened by Chinese imports. However, Oriental influence on furniture, garden design and fashion gave a new vitality to European traditions.

ANTHROPOLOGY THROUGH FILM

Six Thursday evenings starting February 23
7:00-9:00 p.m.

Fee: \$40 (\$36 for Members)

Filmmakers join **Dr. Malcolm Arth** in presenting new and unusual works which convey insight as well as beauty. From behind the scenes at a banquet in China to the impact of tourism on a people of the Sudan; from a folk ritual in rural Japan to the conflicts of a Harvard undergraduate, these ten films illuminate the human condition. Dr. Arth, one of the organizers of the annual Margaret Mead Film Festival, is an anthropologist and Curator of Education at the Museum.

Feb. 23 — **HOPI: SONGS OF THE FOURTH WORLD**. 1983. Pat Ferrero (58 mins.) A sensitive documentary revealing the values of this ancient but still vital Native American culture. GUEST: **Pat Ferrero**.

Mar. 1 — **SEVEN YOUNG GODS OF FORTUNE**. 1983. Yasuhiro Omori. (66 mins.) The Japanese Dosojin fertility festival combines elements of deeply rooted folk belief and masked theater. Filmed by the anthropologist studying the community. GUEST: **Dr. Yasuhiro Omori**.

Mar. 8 — **MASTERS OF THE WOK**. 1983. Sue Yung Li. (29 mins.) Shandong cuisine from peasant noodles to Imperial delicacies. Behind the scenes at a banquet, Sichuan spice market and cooking academy.

WATER FARMERS. 1983. Sue Yung Li. (28 mins.) The unique way of life in the water country of Shaoxing, China. Lotus harvest, pearl and fish farming, and making rice wine. GUEST: **Sue Yung Li**.

Mar. 15 — **THE SHARKCALLERS OF KONTU**. 1982. Dennis O'Rourke. (54 mins.) Thrilling and rarely filmed seafaring ritual in a Papua New Guinea



All Northwest Coast artwork by Gordon Miller. Courtesy of the British Columbia Museum of Anthropology.



village struggling to retain tradition.

Mar. 22 — **FROM HARLEM TO HARVARD.** 1982. Marco Williams. (30 mins.) The stress of the freshman year at Harvard intensifies for the first person from his high school ever admitted there. **GUEST: Marco Williams.**

WHERE DID YOU GET THAT WOMAN? 1982.

Loretta Smith. (28 mins.) A moving portrait of an elderly ladies' room attendant in Chicago.

SALAMANDERS: A NIGHT AT THE PHI DELTA HOUSE. 1982. George Hombeln, Marie Hornbein, Tom Keiter and Kenneth Thigpen. (14 mins.) A Pennsylvania college fraternity through its annual ritual communicates the power of peer pressure.

Mar. 29 — **SOUTHEAST NUBA.** 1983. Chris Curling. (60 mins.) An investigation of the impact of photographer Leni Riefenstahl's published work on the life of the Nuba people of the Sudan.

FIDDLES, FLUTES, LUTES & ZITHERS: A Festival of World Music

PRODUCED WITH THE ALTERNATIVE MUSEUM

Three Thursday evenings starting March 15
7:00-9:00 p.m.

Fee: \$22 (\$20 for Members)

Mar. 15 — **FIDDLES**

Host: **Matt Glaser** (Western fiddle)

Fiddle Fever: Matt Glaser, Jay Ungar, Evan Stover
— Appalachian, Western swing, Old Time, etc.

Billy Bang: Jazz violin

Johnny Cunningham: Scottish fiddle

Simon Shaheen: Arabic fiddle

Tien-Juo Wang: Er'hu (Chinese fiddle)

John Vartan: Yayla tanbur (Turkish long-necked bowed lute), kemenche (Armenian spike fiddle)

Zevulun Avshalomov & Jeffrey Werbock:

Kamancheh (Caucasian liddle)

Mar. 22 — **FLUTES**

Host: **David Amram** (various flutes, ocarinas)

Tahuantinsuyo: Pepe Santana, Guillermo Guerrero
— flutes and panpipes (sikus, tarkas, kena) of the Andes

Steven Gorn: bansuri (North Indian bamboo flute)

Ralph Samuelson: shakuhachi (Japanese bamboo flute)

Tim Liu: di (Chinese flute)

Robert Dick: bass flute

Paul Berliner: kudu (African horn)

Mar. 29 — **LUTES & ZITHERS**

Host: **Andy Statman** (mandolin)

Jeffrey Werbock: Caucasian tar (long-necked lute)

John Vartan: Saz (Turkish lute)

Tahuantinsuyo: charango, cuatro and other lutes of South America

James Emery: jazz guitar

Oiyin Wang: Pi'pa (Chinese lute)

Susan Cheng: Cheng (Chinese zither)

Reiko Kamata: koto (Japanese board zither)

Simon Shaheen: 'ud (Arabic lute)

Mohammed El Akkad: qanun (Arabic zither)

Arooj Lazewal: sitar (North Indian)

Mar. 26 — **LAND OF THE TREMBLING EARTH:**

Okeleneke National Wildlife Refuge.

Apr. 2 — **DENALI: THE GREAT ONE:** Tundra plants and animals of Alaska's Denali National Park.

THE WORLD OF ISLAM

Six Tuesday afternoons starting February 21
2:30-4:00 p.m.

or

Six Monday evenings starting February 27
7:00-8:30 p.m.

Fee: \$35 (\$31.50 for Members)

Paul J. Sanfaçon, Lecturer in Anthropology at the Museum, discusses the role of Islam in the history of the Mediterranean world and the Middle East. Using color slides, his talks cover: The Five Pillars; role of Ayatullah-s and Mullah-s; the Islamic system of education. Included are discussions of the role of Jews and other minorities in Muslim lands; and the daily lives of men and women. The series concludes with discussions of European colonialism and consolidation of national identities of Middle Eastern nations.

1. **BEGINNINGS AND SPREAD OF ISLAM:** a

world religion from Morocco to East Asia.

2. **NOMADS AND TOWN-DWELLERS:** urban-rural relations and the "Islamic" City.

3. **SURRENDER TO ALLAH:** general principles of Islam.

4. **MEN AND WOMEN IN MUSLIM SOCIETIES:** stereotypes versus reality.

5. **ISLAMIC EDUCATION:** history and comparisons with Europe.

6. **THE COLONIAL PERIOD AND TODAY:** British, French, and American spheres of influence.

INSECTS: Earth's Most Successful Animals

Six Thursday evenings starting February 23
7:00-8:30 p.m.

Fee: \$35 (\$31.50 for Members)

Informal slide-illustrated talks introduce the fascinating world of insects. **Alice Gray**, Scientific Assistant Emerita in the Department of Entomology, discusses structure, life histories, environmental relationships, and the significance of insects to man.

Feb. 23 — **INSECTS AND THEIR PLACE IN THE ANIMAL KINGDOM:** introduction, basic anatomy, and present diversity; factors contributing to success.

Mar. 1 — **THE PRIVATE LIVES:** how they grow, molting and its control; life histories and social behavior.

Mar. 8 — **BED AND BOARD:** insect habitats, food and feeding, shelter problems, reproductive potential and population fluctuations.

Mar. 15 — **HAZARDS OF INSECT LIFE:** survival responses to competition, predators and climate.

Mar. 22 — **THE SENSES OF INSECTS:** how they are studied; communication among insects.

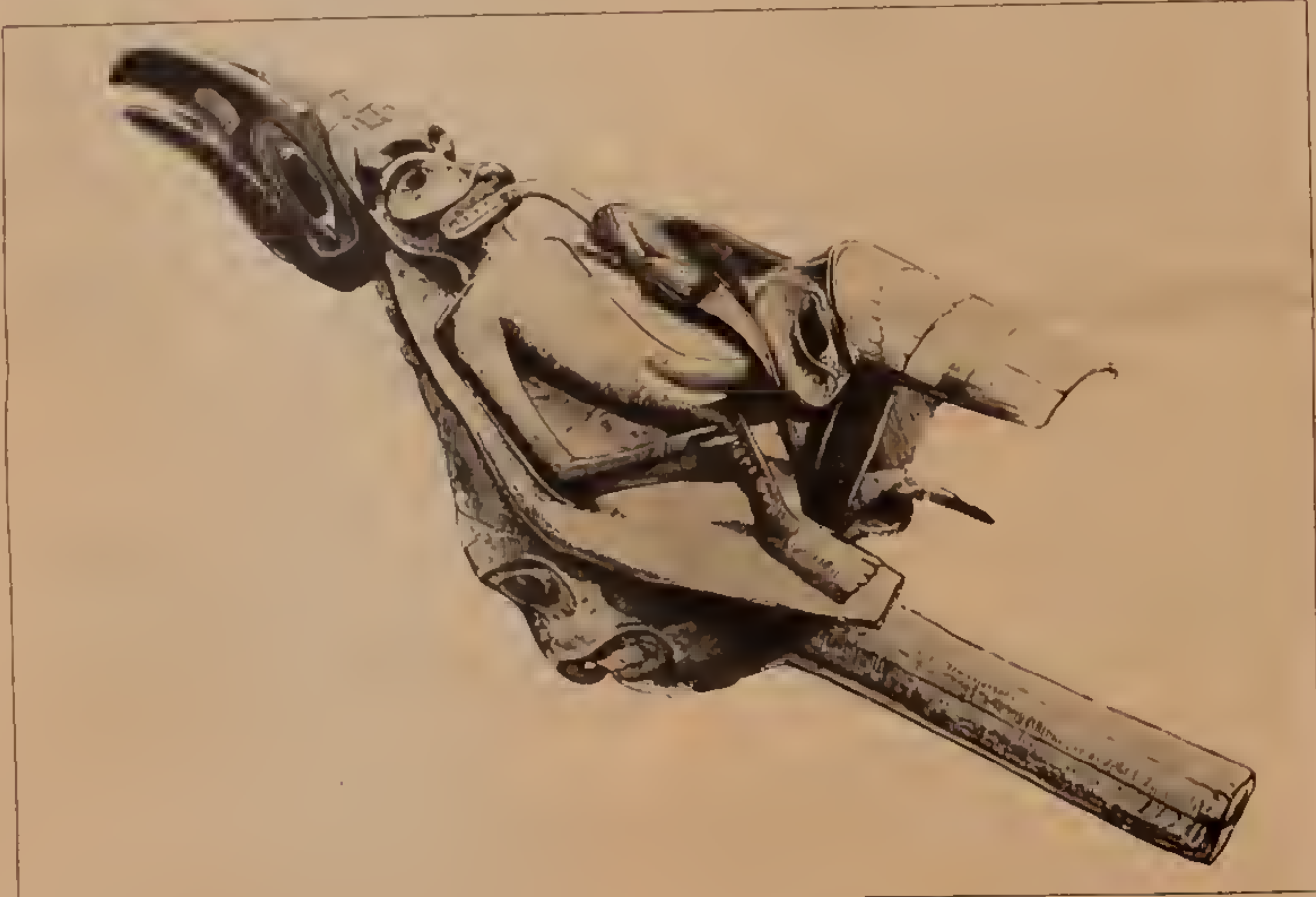
Mar. 29 — **INSECTS AND PEOPLE:** harmful and beneficial aspects; how man affects the insect world; some thoughts on peaceful coexistence.

AFRICAN MAMMALS

Six Tuesday evenings starting February 21
7:00-8:30 p.m.

Fee: \$35 (\$31.50 for Members)

Africa has long served as a vast outdoor laboratory for studying the behavior of wild animals. **Dr.**



EXPLORING AMERICAN WILDERNESS AREAS

Six Monday afternoons starting February 27
2:30-4:00 p.m.

or

Six Monday evenings starting February 27
7:00-8:30 p.m.

Fee: \$35 (\$31.50 for Members)

Much of the remaining scenic grandeur and wildlife of the United States and Canada is restricted to federally preserved areas such as National Parks, Monuments and Wildlife Refuges. With rich color slides, this series introduces some of the most beautiful and diverse of these regions. Emphasis is on plant and animal life, their conservation and ecological significance. **Kenneth A. Chambers** is Lecturer in Zoology at the Museum.

Feb. 27 — **GEYSER BASINS TO MANGROVE**

SWAMPS: Yellowstone and Grand Teton National Parks; plant and animal life in sub-tropical Everglades.

Mar. 5 — **DESERT WILDLIFE IN NEW MEXICO & ARIZONA:** Chinichua, White Sands and Carlsbad Caverns.

Mar. 12 — **PRIBILOF ISLANDS OF ALASKA & WILDLIFE OF THE NEW YORK ADIRONDACKS**

Mar. 19 — **WILD FLOWERS & BIG GAME:** Wild flower spectacular on Mt. Rainier; big game in the Canadian Rockies.

Richard G. Van Gelder, Curator of Mammals at the Museum, and leader of Museum Discovery Tours to Africa, has studied the behavior of African mammals since 1968. His lectures utilize his own excellent slides.

Feb. 21 — **THE GIANTS** — elephants, giraffes, rhinos, and hippos.

Feb. 28 — **THE HUNTERS** — lions, cheetahs, leopards, hyenas, and wild dogs.

Mar. 6 — **THE PREY** — buffalo, wildebeest, and zebras.

Mar. 13 — **THE PREY** — antelopes and gazelles.

Mar. 20 — **WEE BEASTIES** — dik-diks, suni, duikers, and hyraxes.

Mar. 27 — **MAN'S POOR RELATIONS** — gorillas, baboons, and vervets.

PLANT LIFE AT THE EDGE OF THE SEA

Five Tuesday afternoons starting February 21 2:30-4:00 p.m.

or

Five Thursday evenings starting February 23 7:00-8:30 p.m.

Fee: \$30 (\$27 for Members)

Helmut Schiller, Lecturer in Botany at the Museum, explores the tide pools, the windswept scrub, and the rocky and sandy beaches of the Atlantic Coast. Adaptations that enable plants to survive in this salty, sunbaked environment will be examined. In this series of slide-illustrated lectures you will become acquainted with the succulent plants of the sand, algae of the tide pools, marsh plants, and edible wild fruits and vegetables along the shore and woodland border.

1. **THE SEACOAST ENVIRONMENT:** Marine habitats and seawater; the origin, basic structure, and evolution of seacoast plants.

2. **SEAWEEDS OF THE INTERTIDAL ZONE:** Life among the hardy brown algae, from the tropics to the arctic.

3. **BELOW LOW TIDE:** Life in the domain of delicate red algae and giant kelps, from among the corals and mangroves of the tropics to rocky arctic shores.

4. **THE SHORE ABOVE THE TIDES:** Flowering plants of salt marshes, sandy and rocky beaches, and their adaptations to this saline, desert-like environment. Salt marshes and marine productivity.

5. **THE EDGE OF THE WOODS:** The web of plant life among pioneer shrubs and trees.

FORAGING FOR DINNER: Identifying, Collecting and Preparing Wild Foods

Six Tuesday evenings starting February 21 7:00-8:30 p.m.

Fee: \$35 (\$31.50 for Members)

Get to know the wild plants that have been used for food by people throughout the ages. In this series of lectures with slides and demonstrations, plants are examined, their cultural history noted, and methods of preparing the more common ones are shown. **Dr. Helen Ross Russell**, author of the book, *Foraging for Dinner*, has led scores of wild food forages in the metropolitan area.

Feb. 21 — **PHILOSOPHY OF FORAGING:** modern foragers; conservation and responsibility; techniques for plant identification; a special look at the rose family.

Feb. 28 — **DANGERS AND BENEFITS OF FORAGING:** types of plant poisoning; edible nightshades, mushrooms, sumacs, and poisonous beans.

Mar. 6 — **COOKING, BEVERAGE MAKING, AND PRESERVING:** providing for tomorrow; plants appropriate for each technique.

Mar. 13 — **FLOWERS IN YOUR COOKPOT:** using ornamental plants for food; common, easily identifiable specimens.

Mar. 20 — **THAT WEEDY GARDEN!** Identifying and preparing edible wild plants that flourish in gardens.

Mar. 27 — **WILD PLANTS IN NORTH AND SOUTH AMERICAN HISTORY:** contributions to Native American cultures and to the cookpots of early settlers.

EXPLORE WEAVING

Six Thursday evenings starting February 23 7:00-9:30 p.m.

Fee: \$85 (materials Included)

Limited to 22 persons

In the past century archeologists have become increasingly aware of the antiquity and importance

of weaving throughout the world. Using simple equipment, **Phyllis Mandel**, handweaver and anthropologist, leads participants in fundamental textile techniques. Workshops also include lectures illustrated with beautiful color slides, and demonstrations of looms from Africa, Asia, the Americas, and the Pacific Islands. Participants complete three weaving projects, for which all materials are provided.

ORIGAMI: An Introduction to Paperfolding

Six Tuesday evenings starting February 21 7:00-8:30 p.m.

Fee: \$60 (materials included)

Limited to 20 persons

Origami is the Japanese word for the centuries-old international art of folding single sheets of paper to create anything imaginable without using scissors or paste. The class will learn many traditional origami bases and become familiar with the maneuvers and terminology of the art. Among the models to be taught are a butterfly, strawberry, dove, panda, and frog. The instructor, **Michael Shall**, provides step by step diagrams which he designed with his teacher, Alice Gray, to reinforce what is folded during each session.

ANIMAL DRAWING

Eight Tuesday evenings starting February 21 7:00-9:00 p.m.

Fee: \$80 (materials not included)

Limited to 25 persons

Join us as we sketch gazelles on the African plains, or draw timber wolves in the snowbound north.

Using exhibition halls after the Museum has closed to the public, students draw from realistic habitat groups as well as mounted specimens. **Stephen C. Quinn**, Senior Principal Preparator-Artist in the Museum's Exhibition Department, will discuss drawing technique, animal anatomy, the role of the artist at the Museum, field sketches, and how exhibits are made. Different media and techniques are explored. Individual guidance is given to each participant from beginner to experienced artist.

The following exhibition halls will serve as studios: The Akeley Hall of African Mammals, Osborn Hall of Late Mammals, Hall of North American Mammals, Hall of North American Birds, Hall of Late Dinosaurs, Hall of Ocean Life.

FIELD TRIPS

SATURDAY FIELD WALKS IN BOTANY

Six day walks starting April 28 10:00 a.m.

Fee: \$70 — Limited to 30 adults

During the spring blooming period, walks are taken to areas of botanical significance in New York City and vicinity to learn about wild plants, particularly the flowering forms. Identification and ecology of the plants are discussed informally. **Helmut Schiller**, Lecturer in Botany at the Museum, leads the Saturday walks.

WEEKEND FOR BIRD ENTHUSIASTS

May 5 and 6, 1984

Limited to 36 adults

Two-day bus trip covering a wooded area near New York City, and daytime and evening visits to a lake and bog area in the Pine Barrens of New Jersey. The group is accommodated overnight near Toms River. The tour continues to Brigantine National Wildlife Refuge, where many marsh birds as well as woodland species can be seen. **Kenneth A. Chambers**, Lecturer in Zoology at the Museum, leads this field study tour.

WEEKEND WHALE WATCH OFF CAPE COD

May 11-May 13, 1984

Limited to 45 persons

A weekend of whale-watching off the rich feeding grounds of Stellwagon Bank, near Cape Cod, where several species of whales are commonly seen at

close range. Our search for these magnificent creatures involves three optional 4 hour whale cruises from Provincetown. In addition to the marine biologists who will be aboard the boat, two Museum staff members will accompany the group: **Sydney Buffum**, a Senior Instructor in the Education Department, and **Stephen C. Quinn**, an expert field ornithologist, who will assist in identifying the many species of coastal birds.

Other highlights of the weekend include optional nature walks along the dune and marsh areas of the Cape Cod National Seashore, exploring historic Provincetown, an evening Marine Mammal Slide Talk illustrating interesting sightings off the Bank, and a visit to the reconstructed whaling port of Mystic, Connecticut. Cost includes transportation, accommodations and meals.

WEEKEND IN GEOLOGY

May 19 and 20 — Limited to 36 adults

Two-day bus trip to survey geology between the Appalachian Plateau in northeastern Pennsylvania and the Coastal Plain of northern New Jersey. Along the Coastal Plain there are visits to Sandy Hook and the Highlands of the Navesink. Collecting stops are made enroute. The group is accommodated overnight near Parsippany. **Dr. George Harlow**, Associate Curator, Department of Mineral Sciences at the Museum, leads this field study tour.

For Weekend Field Trip Itinerary and application, call (212) 873-7507.



I would like to register for the following lecture series:

Course(s):

Day(s): Time:

Price: (Note that Participating, Donor and Elected Members get a 10% discount on many courses.)

Name:

Address:

City: State: Zip:

Daytime Phone:

Membership category

I enclose a check payable to the American Museum of Natural History, and a self-addressed, stamped envelope. Mail to *Afternoon and Evening Lecture Series*, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024

Happenings at the Hayden

Sky Shows

The Spirit of Christmas.

January 1 and 2 mark the final presentations of this show, which tells the story of Christmas and features more music and special effects than ever before. For schedule please call (212) 873-8828.

Cosmic Mysteries. January 6 through April 2. Are UFO's visitors from the stars? Could the extinction of the dinosaurs millions of years ago have a cosmic connection? What will be the ultimate fate of our universe? *Cosmic Mysteries* explores these and other fascinating questions, the answers to which have been eluding science.

Sky Show Times
Weekdays: 1:30 and 3:30 p.m.

Saturday: 11:00 a.m. and hourly from 1:00 to 5:00 p.m.
Sunday: hourly from 1:00 to 5:00 p.m.

Admission for Participating, Donor, and Elected Members is \$2.75 for adults, \$1.50 for children. For non-member prices call (212) 873-8828.

Laser Zeppelin. Begins January 6. New laser visuals

combine with the music of Led Zeppelin to create a unique experience in sight and sound.

Friday and Saturday at 7:30, 9:00, and 10:30 p.m.

Admission for Participating, Donor, and Elected Members is \$4.00. Tickets can be purchased in advance at Ticketron outlets, or at Planetarium box office on the night of the show. For more information about the laser show call (212) 724-8700.

School Programs. The Planetarium also offers many programs for young children. Of special interest is Max's Flying Saucer, a new school program which discusses the possibility of life on other planets. In this charming sky show a little boy named Max, after seeing a UFO, is given a ride in a friendly alien's spaceship and taught many things about the universe — including how to be a good observer.

For school information call (212) 873-5714. For general information, call (212) 873-8828.

A Gift From the Heart

Monday, January 16 at 7:30 p.m.
Main Auditorium, Free.

The Reverend Dr. Martin Luther King, Jr. was a heroic and inspiring civil rights fighter, educator, minister and philosopher. He gave from his heart not only to American blacks but to a world in which struggles for freedom continue. If he were alive today, he would be celebrating his 53rd birthday on January 15.

The Gift of Music is a performance of African-American and Caribbean music, poetry and dance commemorating Dr. King, and celebrating black pride and heritage. The program will include a gospel choir, the Calabash Dance Company, the Chelsea Quartet, and a poetry reading by actress Joanna Featherstone.

The performance is cosponsored by the Caribbean and African-American programs of the Museum's Education Department, together with the New York City Department of Parks and Recreation. For more information call the Education Department at (212) 873-1300, extension 514.



Courses for Stargazers

Astronomy

Introduction to Astronomy. Eight Mondays beginning January 9, 6:30-8:40 p.m. \$70 (\$63 for Members). Mr. Selzer.

Stars, Constellations, and Legends. Five Thursdays beginning January 12, 6:30-8:10 p.m. \$50 (\$45 for Members). Mr. Beyer.

Life Beyond the Earth: The Search for Life in the Cosmos. Eight Wednesdays beginning January 11, 6:30-8:40 p.m. \$70 (\$63 for Members). Mr. Storch.

Comparative Planetology. Eight Wednesdays beginning January 11, 6:30-8:40 p.m. \$70 (\$63 for Members). Prerequisite: *Introduction to Astronomy*, or permission of instructor. Dr. Allison.

Stars, Galaxies, Quasars, and Cosmology. Eight Thursdays beginning January 12, 6:30-8:40 p.m. \$70 (\$63 for Members). Prerequisite: Same as above. Dr. Allison.

Aviation

Ground School for Instru-

ment Pilots. Fourteen sessions, Tuesdays and Thursdays beginning January 10, 6:30-8:40 p.m. \$175 (\$157 for Members). Prerequisite: *Ground School for Private and Commercial Pilots* or commercial pilot's license. Mr. Cone.

Navigation

Navigation in Coastal Waters. Ten Wednesdays beginning January 11, 6:30-8:40 p.m. \$95 (\$85 for Members). Dr. Hess.

Electronic Navigation and Communications. Eight Mondays beginning January 9, 6:30-8:40 p.m. \$70 (\$63 for Members). Mr. Mueller.

Piloting for Sailboat Operators. Ten Mondays beginning January 9, 6:30-8:40 p.m. \$95 (\$85 for Members). Prerequisite: *Navigation in Coastal Waters* or permission of instructor. Prof. Parnham.

Introduction to Celestial Navigation. Ten Tuesdays beginning January 10, 6:30-8:40 p.m. \$95 (\$85 for Members). Prerequisite: Same

as above. Prof. Parnham.

Advanced Celestial Navigation. Ten Thursdays beginning January 12, 6:30-8:40 p.m. \$95 (\$85 for Members). Prerequisite: *Introduction to Celestial Navigation* or permission of instructor. Prof. Parnham.

For Young People

Introduction to the Sky. Ten Saturdays beginning January 14, 12:00-12:50 p.m. \$25 (\$22 for Members). Mr. Small.

The Solar System. Ten Saturdays beginning January 14, 10:30-11:20 a.m. \$25 (\$22 for Members). Mr. Small.

Stars, Black Holes, and Galaxies. Ten Saturdays beginning January 14, 9:30-10:20 a.m. \$25 (\$22 for Members). Mr. Small.

The Final Frontier. Five Saturdays beginning January 14, 11:00 a.m.-12:40 p.m. \$25 (\$22 for Members). Mr. Thomas.



Professor Horold A. Parnham illustrates the use of a sextant in *Introduction to Celestial Navigation*, beginning January 10.

Participating, Donor and Elected Members are cordially invited to a Special Members' Opening and Reception for

Silk Roads — China Ships —

Thursday, February 23, 5:30, 6:30 or 7:30 p.m.



This groom and camel, both of glazed earthenware, were sculpted during the Tang Dynasty in China — over 2,000 years ago.

The Exhibition - Silk Roads/China Ships tells the story of international commerce which linked the world powers of Rome and China beginning over 2,000 years ago. This commerce, motivated in part by a fascination with the exotic, flourished along a route which came to be known as the Silk Road.

Drawing mostly from the collections of the Royal Ontario Museum, *Silk Roads/China Ships* is structured into thematic sections which include the transportation methods and peoples involved in trade, manmade and natural products such as porcelain,

silk and tea, and archeological finds at a strategic stronghold on the Silk Road.

Entertainment - The Chinese Music Ensemble of New York will perform selections from its large repertoire of regional Chinese folk music as well as ancient classical music. This ensemble will perform from 6:30 to 9:00 in the Hall of Asian Mammals. Among the many traditional Chinese instruments they will play are the Er'hu (Chinese violin) and the Pi'pa (Chinese lute).

Refreshments - There will be a cash bar in the Hall of Asian Mammals serving wine, beer and soda.

This exhibition was organized by the Royal Ontario Museum and made possible by a grant from the American Express Foundation.

Members' Opening for Silk Roads/China Ships. Thursday, February 23.

Please Indicate a first and second choice of times

5:30 p.m. 6:30 p.m. 7:30 p.m.

Number of people:

Name:

Address:

City:

State:

Zip:

Daytime Phone:

Membership category:

Please mail with a self-addressed, stamped envelope to:
Silk Roads/China Ships Reception, Membership Office,
American Museum of Natural History, Central Park West at
79th Street, New York, NY, 10024.

Tectonic Travellers

Tuesday, February 14, 7:30 p.m.,
Main Auditorium,
Free and open only to Members

If you live on the continent of North America, you are moving just a little bit closer to Asia each year. At the same time, you are moving further away from Europe.

Plate tectonics, the theory that the earth is made up of

constantly shifting crustal slabs, has not only revolutionized modern geology, it has also dramatically altered scientists' thinking about the ways animals have dispersed themselves around the world.

For the past 10 years, Dr.

Malcolm McKenna of the Museum's Department of Vertebrate Paleontology, has been studying how geological phenomena such as continental drift and island formation have affected the distribution of the world's flora and fauna. He will discuss his findings at our February Members' program, when he presents a slide-illustrated lecture entitled *Tectonic Travellers*.

Members will take a look at how the earth has changed over millions of years. Dr. McKenna will describe Earth during eras when a land bridge connected Alaska to Asia, when Scandinavia was part of the North American continent, and before India became plastered to the Asia mainland.

Using the fossil evidence, Dr. McKenna will discuss how plants and animals migrated across land bridges, how they drifted on land masses from one area to another, and how fossils themselves may have been transferred to land masses on which the organism in question never lived. The program will also present exciting new theories concerning the migration of plants and animals to young hot-spot

islands like Hawaii and how animals on certain islands such as Iceland may actually antedate the oldest rocks now existing there.

Dr. McKenna is the Museum's Frick Curator. A specialist in fossil mammals, Dr. McKenna has travelled around the world to explore for fossil vertebrates. He has described a number of unknown fossil mammals,

especially primitive relatives of today's most familiar mammals. In addition to his research on biogeography, he has been working extensively with Chinese scientists on Mongolian and Chinese fossils.

Tectonic Travellers is free and open only to Members. To register, please use the adjacent coupon.



The camel's fossil history exists in North America, yet today camels dwell only in Asia and Africa.

Tectonic Travelers, Tuesday, February 14. This program is open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to six free tickets. Associates are entitled to one. Additional tickets may be purchased at \$4.00 each.

Please send me tickets

Name:

Address:

City:

State:

Zip:

Daytime Phone:

Membership category:

Please mail with a self-addressed, stamped envelope to:
Tectonic Travelers, Membership Office, American Museum of
Natural History, Central Park West at 79th Street, New York,
NY, 10024.

Museum Notes

Special Exhibitions

Exceptional Gems.

Through January 13, 1984. Morgan Hall of Gems. Three exquisite works of lapidary art, an emerald from the Mogul Dynasty of India, an emerald crystal from Columbia, and a ruby from Burma are featured.

1983 Origami Holiday Tree. Through January 8 in the Roosevelt Rotunda.

Francis Lee Jaques:

Artist-Naturalist. Through January 8, 1984. Akeley Gallery. This exhibit features this artist's pioneering work in the realm of wildlife habitat diorama design. This master of realist imagery translated the essence of a living environment through light, space, and atmosphere, to habitat formations on two-dimensional murals.

Right Through the Roof! The Wethersfield Meteorites. Through March 31 in the Arthur Ross Hall of Meteorites. Two meteorites which struck houses in Wethersfield, Connecticut in 1971 and 1982 are on exhibit. Says Martin Prinz (Mineral Sciences), "The odds of (a meteorite) striking a town, much less a house, are miniscule. The probability of two meteorites striking houses in the same town is incalculable."

Programs and Tours

Museum Highlights

Tours. For the new Museum visitor as well as the veteran Museum goer, the Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. The tours leave regularly from the second-floor Information Desk. If you wish to join a free tour, please ask at the information desks for specific tour times.

Discovery Tours. The Museum offers exciting and unusual tours of exotic lands in company with Museum scientists, archeologists, anthro-

pologists, historians, and naturalists. For more information about tours and itineraries, write to Discovery Tours at the Museum or call 873-1440.

Natural Science Center.

The Center introduces young people to the varied wildlife, plants, and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, from 2:00 to 4:30 p.m., and Saturday and Sunday from 1:00 to 4:30 p.m. The Center is closed Mondays.

People Center. Ethnic programs featuring dance, music, films, lectures, and workshops are presented on weekends from 1:00 to 4:30 p.m.

Discovery Room. Children are delighted to touch and handle natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed on a first-come, first-served basis at the first-floor Information Desk. The room is open only on weekends from 12:00 to 4:30 p.m. Recommended for ages 5 to 10.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours.

Daily from 11:00 a.m. to 4:45 p.m.

American Museum Restaurant. Luncheon is served daily from 11:00 a.m. to 3:00 p.m. Afternoon tea is served from 3:00 to 5:00 p.m. Dinner is served Wednesday, Friday, and Saturday evenings from 5:30 to 7:30 p.m. The American Museum Restaurant is located next to the cafeteria, in the basement. Museum Members receive a 10% discount.

Museum Parking Lot.

Located on 81st Street. Open Monday through Thursday: 9:30 a.m. to 9:30 p.m. Friday through Sunday: 9:30 a.m. to 12:30 a.m. Rates are \$6.00 for cars, \$7.00 for buses.

Parking is limited.

Lion's Lair. Relax and enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research

Station. Museum Members have visiting privileges at this outpost. If you are planning a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For visits of more than one week, applications should be made to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street Lobby near the Great Canoe. Schedules and films may vary, so call the Naturemax Recording for current information before visiting the theater: (212) 496-0900. Museum Members receive a 50% discount.

February at the Museum

Black History Month.

Leonhardt Peoples Center. Weekends from 1:00 to 4:30 p.m.

Members' Preview: Silk Roads/China Shlps. Thursday, February 23. Reservations required.

Tectonic Travellers.

Tuesday, February 14 at 7:30. Free and open only to Members.

Education Department Lecture Series. Begin Saturday, February 21. Registration required.

Members' Tour of the Month Our National Parks



Grizzly bears from Yellowstone National Park in the Hall of North American Mammals.

From the verdant forests of the Northeast to the blue-tinged glaciers of Alaska, our national parks offer the nature lover an incredible sampling of plants and animals, well-adapted to climates and terrains which are startlingly varied over a wide expanse of land. This month you are invited on an indoor journey through many of the famous national parks which are represented in the Museum.

During the course of this tour, which features the Hall of North American Mammals, you will enter Yellowstone National Park and come upon a family group of this continent's most formidable animal — the grizzly bear. Mountain lions lounge in the cliffs overlooking the Grand Canyon. In the adjacent Hall of Small Mammals, two piglike peccaries

sniff at the ground at Big Bend National Park, Texas.

Each habitat group is set in a particular environment at a particular season and time of day. Whether you stand in a deciduous forest in the Smoky Mountains or above timberline in Montana, you will be face to face with living creatures which are uniquely adapted to areas in which others might perish. Bogs, sonoran desert, tundra and rain-forest pose unique problems and advantages for their inhabitants. Volunteers from the Museum Highlights Program will emphasize the ecology of each habitat group, discussing features such as climate, food availability and predation.

To register for the tour, please use the adjacent coupon. Tour groups will meet in the Members' Lounge.

Members' Tour: Our National Parks

This Tour is free and open to Participating, Donor, and Contributing Members of the Museum. Please indicate a first and second choice of times.

Wednesday, February 1 at 7:00 p.m.
Sunday, February 5 at 11:00 a.m.
Wednesday, February 8 at 7:00 p.m.
Saturday, February 11 at 11:00 a.m.
Friday, February 24 at 7:00 p.m.
Sunday, February 26 at 11:00 a.m.

Number of people:

Name:

Address:

City:

State:

Zip:

Daytime Phone:

Membership category:

Please mail with a self-addressed stamped envelope to: Our National Parks Tour, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Registration closes on January 31.



Collared peccaries, Hall of North American mammals.

The Dream Keeper Speaks: The World of Langston Hughes

Friday, February 3, 7:30 p.m., Kaufmann Theater, Free.

Langston Hughes' colloquial, lyrical poems captured the variegated sounds, words, and colors of the Black experience in America. His milieu was the Harlem of the twenties and thirties. In poems which are in turn tender, moving and humorous, he wrote about the travail of being poor and having limited opportunities. In style, his poetry attempted a fusion with music, and was intended to be read aloud. He used scat-singing, the verse equivalent of jazz riffs, and dialect to give vitality to the poems.

The poetry of Langston Hughes is celebrated in a one-man performance featuring John S. Patterson and directed by choreographer Ernest Parham. In *The Dream Keeper Speaks: The World of Langston Hughes*, Patterson mimes, dances, and sings the poetry, evoking both Hughes' personality and the world he lived in and wrote about. Some of the poems included in the production are "Advertisement for the Waldorf

Astoria", "Harlem Sweeties", "Mother to Son", and most of the "Madam" poems which dramatize the life of one of Hughes' most famous characters, Alberta K. Johnson.

John S. Patterson is an actor and theater critic for the *Villager*, New York's oldest community newspaper. He has taught acting and directed various productions in both university and regional theaters. Mr. Patterson has brought this evocative dramatization of Hughes' work to theaters, galleries, and colleges throughout the country.

This program is free and open to all Museum visitors. Seating will be on a first-come, first-served basis, and Members are advised to arrive early to avoid disappointment. Presented by the African-American Program of the Education Department, this performance is part of February's Black History Month at the Museum. For further information, please call (212) 873-1300, ext. 502.



John S. Patterson breathes music and dance into the poetry of Langston Hughes.

Ireland at the Museum

Irish art, music, film and dance are featured at the Leonhardt People Center. The following events this month will take place Saturdays and Sundays from 1:00 to 4:30 p.m.

January 7 and 8: **Irish Uilleann Pipes** with Bill Ochs and **Introduction to**

Irish Arts with Dave Patterson.

January 14 and 15: **Irish Folk Dances** with Jo McNamara and **Irish Traditional and Sentimental Songs** with Amy Cowell.

January 21 and 22: **Irish Uilleann Pipes** with Bill Ochs.

January 28 and 29: **Irish Folk Dances** with Jo McNamara and **Introduction to Irish Arts** with Dave Patterson.

Short films will be presented each weekend.

All programs are free with Museum admission.



Bill Ochs and his Irish uilleann pipes.

The Black Diaspora

Wednesday, January 4; Thursday, January 12; Wednesday, January 18
Main Auditorium, 7:00 p.m., Free.

The *Journey Across Three Continents* film series concludes this month with three films which explore the black diaspora and the struggles, traditions and social changes which have accompanied it to the present. The following films hail from Africa, Europe, and North America.

Gounta (Blood Money), Wednesday, January 4
This 93-minute film by Astrat Getahun is the first color feature to be produced in Ethiopia. It depicts the story of a young man who accidentally kills his friend on a hunting trip. His punishment begins with exile from his village, and a journey through the Ethiopian countryside.

Burning an Illusion, Thursday, January 12
This film by Menelik Shabazz, is a gripping story of two

young lovers, British-born blacks who live in London's West Indian community. They struggle for dignity in a society which offers them second-class citizenship.

Ashes and Embers, Wednesday, January 18
This 120-minute film by Haile Gerima depicts the turmoil of Ned Charles, a black Vietnam veteran. Eight years after returning from the war his angry memories continue to affect his outer life and inner thoughts.

These films are presented by the African American Program of the Museum's Department of Education. For additional information, please call the Department of Education at (212) 873-1300 ext. 514, or the Third World Newsreel at (212) 243-2310.

Sun

1 New Year's Day
Museum open

Mon

2 Last presentation of Spirit
of Christmas at the
Hayden Planetarium.

Tue

3 New Moon: Quadrantid
meteor shower

Wed

4 7:00 p.m. Journey
Across Three Continents
Film Festival. Auditionum.
Free. (Article page 11)
7:45 p.m. Amateur Astrono-
mers Association. Kaufmann
Theater Free.

Thu

5 7:00 p.m. Systematics
Discussion Group. Room
419. Free.

Fri

6 Cosmic Mysteries sky
show starts today at the
Hayden Planetarium. Also,
new laser show, Laser Zeppe-
lin, opens this evening.
8:00 p.m. N.Y. Microscopical
Society. Room 419. Free

Sat

7 11:00 a.m. N.Y. Map Society.
Room 129. Free.
1:00-4:30 p.m. Ireland: Land and
Culture Irish Uilleann Pipes with Bill
Ochs: Introduction to Irish Arts with
Dave Patterson. Leonhardt People
Center. Free
Moon is at apogee.

8 1:00-4:30 p.m. Ireland: Land
and Culture Irish Uilleann Pipes

with Bill Ochs: Introduction to Irish
Arts with Dave Patterson. Leonhardt
People Center. Free
2:00 p.m. New York Shell Club.
Room 419. Free.

9 Courses for Stargazers
begin today (See article
page 8.)

Members of the Archeology
Tour to Mexico arrive in
Mexico City. For information
on future trips call (212)
873-1440

10

11 7:30 p.m. Ice Age
Hunters Symposium.
Auditionum. (Article page 2)
Call (212) 873-7507 for infor-
mation. First Quarter (half
moon)

12 7:00 p.m. Journey
Across Three Conti-
nents Film Festival. Audito-
num. Free. (Article page 11)

13 Last day to view
Exceptional Gems
exhibit in the Morgan Hall of
Gems.

14 1:00-4:30 p.m. Ireland:
Land and Culture. Irish Folk
Dances with Jo McNamara. Irish Tra-
ditional and Sentimental Songs with
Amy Couell. Leonhardt People Cen-
ter Free.

15 1:00-4:30 p.m. Ireland:
Land and Culture. Irish Tra-
ditional and Sentimental Songs with
Amy Couell. Irish Folk Dances with
Jo McNamara. Leonhardt People
Center Free

16 7:30 p.m. A Tribute
to Dr. Martin Luther
King, Jr. Auditionum. Free.

17 7:30 p.m. Research
at Zero-g. Members'
Evening Program. Audito-
num. Reservations required.
(See article page 1)

18 7:00 p.m. Journey
Across Three Conti-
nents Film Festival. Audito-
num. Free. (Article page 11)
Full Moon

19 Moon is at perigee.

20

21 1:00-4:30 p.m. Ireland:
Land and Culture. Irish
Uilleann Pipes with Bill Ochs.
Leonhardt People Center. Free.

1:00 p.m. American Cetacean Soci-
ety. Room 319. Free
2:00 p.m. N.Y. Turtle & Tortoise
Society. Room 129. Free.
2:00 p.m. N.Y. Paleontological
Society. Room 426. Free

22 1:00-4:30 p.m. Ireland:
Land and Culture. Irish
Uilleann Pipes with Bill Ochs.

Leonhardt People Center. Free

23

24 Last Quarter (half
moon)

25 7:30 p.m. Lapidary
and Gem Society.
Leonhardt People Center.
Free.

26 8:00 p.m. N.Y.
Microscopical Society.
Room 419. Free.



28 1:00-4:30 p.m. Ireland:
Land and Culture. Irish Folk
Dances with Jo McNamara. Introduc-
tion to Irish Arts with Dave Patterson
Leonhardt People Center. Free

29 1:00-4:30 p.m. Ireland:
Land and Culture. Irish Folk

Dances with Jo McNamara. Introduc-
tion to Irish Arts with Dave Patterson
Leonhardt People Center. Free.
1:30 and 3:30 p.m. Life in a
Hard Shell. Special Members'
Program. Kaufmann Theater. (Article
page 3)



ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 9, No. 2 February 1984



Courtesy of the Royal Ontario Museum - Toronto

Caravans Across the Desert

Opens February 17 in Gallery 3. Members' Reception February 23

As early as the second century B.C., entrepreneurs led camel caravans across the vast deserts and through the treacherous mountain passes of Central Asia. Buyers and sellers converged at various trading centers between China and the Mediterranean to exchange luxury goods such as silk, tea, spices and porcelain. International trade continued to flourish along this network of commercial centers, which came to be known as the Silk Road, into the early twentieth century.

An exhibition of more than 300 artifacts encompassing the concepts and

products of East-West trade through the ages will begin its tour of the United States at the American Museum of Natural History on February 17. Entitled *Silk Roads - China Ships*, it was organized by the Royal Ontario Museum in Toronto and is made possible by a grant from the American Express Foundation.

Silk Roads - China Ships features a wide array of luxury trade items including silver and porcelain tea services, Japanese lacquers, and intricate embroidered Chinese silks. Also included are early maps and constella-

tion charts which illustrate the development of maritime trade, and paintings which depict the cross-cultural influences that resulted from international trade.

Silk Roads - China Ships provides a panorama of two thousand years of commerce between Europe and the Orient. The exhibition will remain at the Museum through May 12.

Members are invited to enjoy Chinese music and a cash bar at a special Members' Reception in the Hall of Asian Mammals. Please use the coupon on page 2 to register.

Moving Continents

Once a land bridge connected Alaska to Asia, and Sandinavia was part of the North American continent. Join Dr. Malcolm McKenna for a slide-illustrated lecture in which you will find out how the earth has changed over millions of years, and how these changes have affected plants and animals whose natural history we study today.

Page 7

For Inquisitive Children

There are many ways to learn about and explore the natural world. The avenues of exploration in **Workshops for Young People** include drawing, paperfolding, studying anatomy and listening to songs and stories.

Page 6

Man and Nature

How has our ancestry affected who we are today, and how we work in and think about the world around us? What are the basic puzzles of our lives? Join Dr. Lewis Thomas in an exploration of our remote past, our present lives, and how these merge to form a broader human view.

Page 3

Black History

The richness and diversity of Black culture and heritage is reflected in song, dance, poetry, art and history as the Museum celebrates Black History Month. Celebrate with us by attending some of the special programs and performances offered throughout March.

Page 5

Notes from the Editor

Schedules and Dreams

It's my second month as editor of *Rotunda*, and about time that I introduce myself to you, the Members. I hope that at some point many of you will also introduce yourselves to me. *Rotunda's* previous editor, Stan Orser, now works in the Development Office, and I, Ruth Q. Leibowitz, sit at the desk in the Membership Office which Stan so lovingly and expertly smoothed and polished many months ago.

The *Rotunda* is a very special newsletter with a very special readership. Because it is designed to give Members a preview of Museum activities, it's important that it arrive at your home before the information it contains is past history. I know there have been some problems in various sectors of the metropolitan area concerning the date of delivery of *Rotunda*, and while I'm not a politician, I will make

you a promise: I will do whatever is in my power to make sure that *Rotunda* does not arrive in your home too late for you to benefit from the many wonderful programs, exhibitions, and Members' activities it contains. For me, this means moving up the publication date and including events for the first half of the following month in each issue. However, there is another force in the universe which greatly affects the date on which you will receive your *Rotundas* — and that is the United States Post Office.

To study and understand the effects of U.S. mail on the delivery of *Rotunda*, the Membership Office will conduct a survey to find out which geographical areas receive their issues significantly later than others. We will then find out *why* this is so, and see what can be done

to alleviate whatever problems exist.

In order for this study to be successful, *we need your help!* During the next few months, many of you will receive postcards which request that you write down the exact date on which you receive *Rotunda*. Please fill out these postage-paid cards and return them to us as soon as possible. This will be of great help in our future endeavors to get *Rotunda* to you as fast as is humanly possible.

Remember *The Night Before Christmas* in which "visions of sugar plums danced in their heads?" Well, since beginning to work here at the Museum, visions of natural history have danced in mine. It all started after I'd been working at the Museum for a month. At home, on a sunny Sunday morning, I guiltily fried my roommate's last two potatoes.

After a delicious home-cooked brunch of scrambled

eggs and crispy, deliciously seasoned home fries, my feeling of guilt grew and grew, until that evening I could stand it no longer. I fled from my Hoboken apartment, entered the first bodega (grocery store) I found open, and purchased a 15-pound bag of potatoes for my roommate.

That night I had the following dream: Henry Schulson, Manager of Membership, enters my office with that look on his face that says "Oh boy, do I have a project for you." It seems we are going to produce a Membership program concerning potatoes. "How exciting!" I think. "We can cover the entire history of the potato! Its cultivation, its ritual significance throughout the world, its effects on the movement of populations such as the Irish, the routes of trade of potatoes and potato recipes!"

You cannot imagine how excited I felt, thinking about such a wonderful program. You cannot imagine the terror that gripped me when Mr.

Schulson said "You'll have to contact the speakers and write the program description for the *Rotunda* by the end of the week..."

The various fascinating topics included in the natural history spectrum do have a way of permeating the blood and the mind. This is a feeling that both people who work here and Members such as yourself share. Whether it be your own natural history dreams, reactions to or suggestions about programs, or general comments about *Rotunda* I would love to hear from you. This is your newsletter, and your input is always welcome.

It's good to be here. Best wishes for a non-Orwellian 1984!

Ruth Q. Leibowitz

* Several weeks after having this dream I found out that *Natural History* published an article about the potato by Raymond Sokolov! If you too are interested in this wonderful plant, consult the March, 1975 issue, which includes a potato recipe!

ROTUNDA

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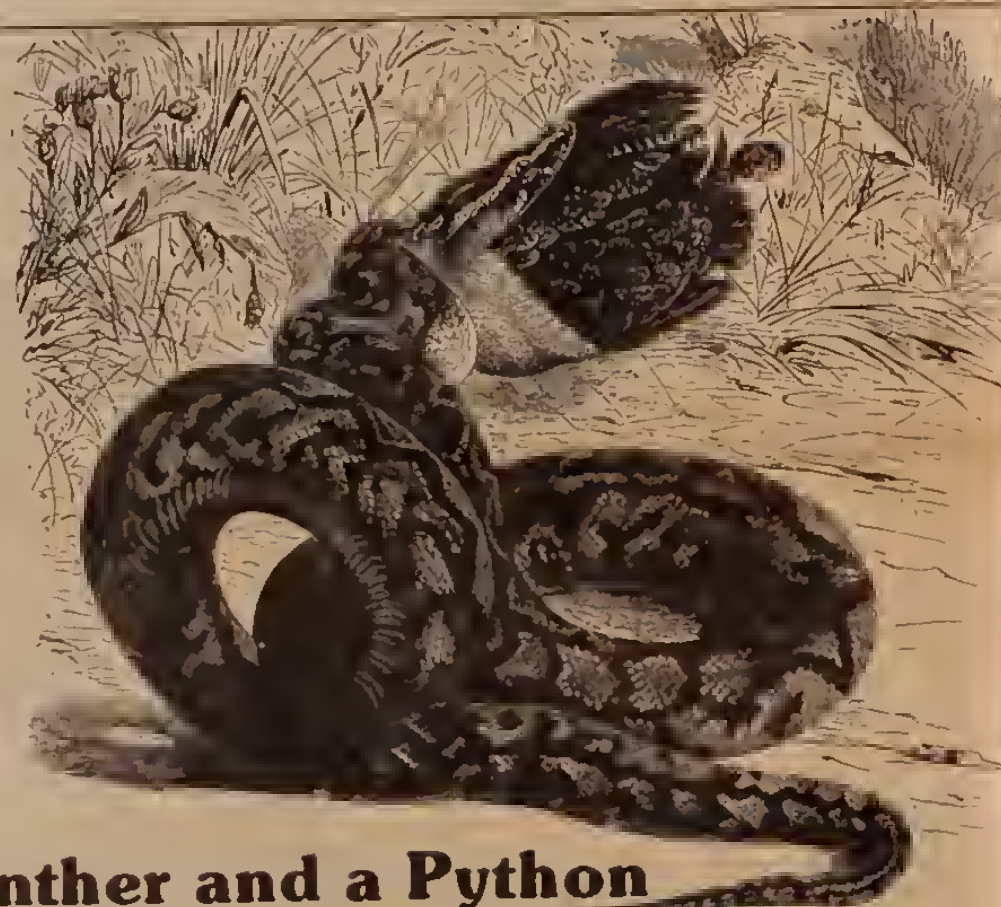
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A Panther and a Python

Sunday, March 11, 11:00 a.m., 1:00 and 3:00 p.m.,
Kaufmann Theater
Free and open only to Members

A black panther cub, a rare albino racoon, a fallow deer from the Mediterranean, a python, and some wild turkeys will join Bill Robinson in the Kaufmann Theater for our March Family Members' program. Mr. Robinson, who has presented some of our most popular family programs, will discuss the characteristics of each of these animals, and the unique adaptations that help them to survive.

Mr. Robinson will use the black panther and the albino racoon to illustrate coloration and genetic variation in animals. The panther and fallow deer will be the focus of a discussion on the relationship between predator and prey.

Most people are familiar with the domesticated turkey that usually forms the basis of a large, delicious Thanksgiving meal. Members will learn the difference between the "supermarket" turkey and the wild turkeys the Pilgrims found when they reached the

North American shore.

Mr. Robinson also plans to bring along one or two other surprises for the audience.

A Panther and a Python is suitable for Members of all ages. Please use the adjacent coupon to register.

A Panther and a Python, Sunday, March 11. This program is open only to members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. All other tickets are \$2.50.

Number of tickets: _____

Please indicate a first and second choice of times.

11:00 a.m. _____ 1:00 p.m. _____ 3:00 p.m. _____

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to:
A Panther and a Python, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Members' Opening for Silk Roads/China Ships,
Thursday, February 23.
Please indicate a first and second choice of times.

5:30 p.m. _____ 6:30 p.m. _____ 7:30 p.m. _____

Number of people: _____

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to:
Silk Roads/China Ships Reception, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Happenings at the Hayden

Sky Shows
Cosmic Mysteries. Through April 2. Are UFO's visitors from far-off stars? Could a giant meteorite crashing through the earth's atmosphere have caused the extinction of the dinosaurs? What is the ultimate fate of our universe? Cosmic Mysteries explores these and other fascinating questions. The answers to many of them still remain beyond our grasp.
Sky Show Times
Weekdays 1:30 and 3:30 p.m.
Saturday: 11:00 a.m. and hourly from 1:00 to 5:00 p.m.
Sunday: hourly from 1:00 to 5:00 p.m.
Admission for Participating, Donor, and Elected Members

is \$2.75 for adults and \$1.50 for children. For non-member prices please call (212) 873-8828.
Laser Zeppelin.
New laser visuals combine with the music of Led Zeppelin to create a unique and dazzling experience of sight and sound.
Friday and Saturday at 7:30, 9:00 and 10:30 p.m.
Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased in advance at Ticketron outlets, or at the Planetarium box office on the night of the show. For more information about the laser show, call (212) 724-8700.

School Shows
The Planetarium offers many programs for young children. Of special interest is *Max's Flying Saucer*. In this charming sky show, a little boy named Max sees a UFO which no one he knows can identify. That very night a friendly alien named Fhui (pronounced *phooey*) gives Max a ride aboard his flying saucer and teaches him many things about the universe. Perhaps the most important lesson Max learns is how to be a good observer.
For school information call (212) 873-5714. For general information call (212) 873-8828.

Up in the Sky

Saturday, February 25, 12:00 noon, Hayden Planetarium
\$2.50 for adults, \$1.00 for children. Open only to Members.

Look — up in the sky! Is it a bird or a plane? No... it's Super Grover, from Sesame Street! Join Grover and his friends Big Bird, Bert, Ernie, Cookie Monster, and other Sesame Street regulars at a special program for children ages 3 to 6, and help them explore the magic of the wonderful sky above us.
The children will be greeted by a teacher-host in the sky theater of the Hayden Planetarium, and will soon be joined by images of their favorite Sesame Street Muppets. Together, through dialogue, song, and audience participation, they explore rainbows, sunsets, and the distant twinkling stars. The children will answer questions, count to three and say the magic words to make the sky turn blue, and help Super Grover move the clouds.
When rain threatens, Oscar the Grouch pops out of his home in a dented garbage can and sings a song in praise of rainy days. And as a beautiful rainbow appears, Big Bird

will explain to the boys and girls how to look for rainbows. Throughout the program, songs with catchy words and tunes will have everyone humming along.
Wonderful Sky, produced by the Planetarium in conjunction with Henson Associates, Inc. and the Children's Television Workshop, is the first Planetarium show ever created especially for pre-school aged children. To register, please use the adjacent coupon.

Wonderful Sky, Saturday, February 25.

This program is open only to Members of the Museum and their guests.

Number of children's tickets _____ X \$1.00 \$ _____
Number of adults' tickets _____ X \$2.50 \$ _____
Total payment enclosed: _____ \$ _____

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Daytime Phone: _____
Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Wonderful Sky*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Super Grover Invites you to help him blow the clouds away.

Members are cordially invited to
The Mack Lipkin Man and Nature Lectures

The Developing Human Species

by
Dr. Lewis Thomas

Wednesdays March 7, 14, and 21
7:00 p.m., Museum Auditorium

Wednesday, March 7: **The Remote Ancestry of Humans**
Wednesday, March 14: **The Education of Humans**
Wednesday, March 21: **The Puzzlement of Humans**

The Speaker

Dr. Lewis Thomas, distinguished scientist and author, is University Professor at the State University of New York at Stony Brook and President Emeritus of Memorial Sloan-Kettering Cancer Center. Born in Flushing, New York, Dr. Thomas was educated at Princeton University and Harvard Medical School. He has served on the medical school faculties of Johns Hopkins University, Tulane University and the University of Minnesota, and has been dean at both the N.Y.U.-Bellevue Medical Center and the Yale University School of Medicine. Dr. Thomas is a member of the National Academy of Sciences, a fellow of the American Academy of Arts and Sciences and the American Philosophical Society. In 1983, he was the recipient of the Kober Medal of the Association of American Physicians.

Dr. Thomas has published over 200 scientific papers on virology, immunology, experimental pathology and infectious diseases. Dr. Thomas received the National Book

Award in Arts and Letters for *The Lives of a Cell* and the American Book Award for *The Medusa and the Snail*. His third book of essays, *Late Night Thoughts on Listening to Mahler's Ninth Symphony* and the memoirs of his career, *The Youngest Science* were published last year.

The Man and Nature Lectures

The Mack Lipkin Man and Nature Lectures were established to honor Dr. Lipkin's significant contributions to the field of biomedical science. They mark the resumption of the popular Man and Nature Lectures that were held at the Museum from 1965 to 1971. The Man and Nature Lectures bring prominent scientists to the Museum to discuss their work and its impact on critical challenges facing humanity. Past lecturers have included Margaret Mead, Jacob Bronowski, and George Wald. The lectures represent part of the Museum's continuing commitment to inform the public of current research and knowledge in the natural sciences.

The Mack Lipkin Man and Nature Lectures

Wednesdays, March 7, 14, and 21

Participating, Donor and Contributing Members are entitled to four series tickets at the price of \$10 for the series. Associates are entitled to one. All other series tickets are \$15. Only tickets for the series can be bought at this time. If available, tickets for individual lectures will be sold on the day of the lecture.

Number of Members' tickets _____ X \$10.00 \$ _____
Number of non-members' tickets _____ X \$15.00 \$ _____
Total amount enclosed: _____ \$ _____

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Daytime Phone: _____
Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Man and Nature Lectures*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

How the Devious Lizard Got A Head

Part I of a Two-part Dinosaur Tale

A Dinosaur of Distinction

"Having a dinosaur in your museum in the early 1900's, was like sending a rocket to the moon," said Gene Gaffney, Curator of Fossil Reptiles at the Museum. "Turn of the century paleontology was a big deal, like NASA is today." And in 1906 our brontosaurus was the first large dinosaur to be mounted at any museum in the world. It is still one of only 5 mounted brontosaurus skeletons.

But it has an even more interesting distinction: It is the only brontosaurus skeleton to retain the head modelled after the one that Professor Othaniel C. Marsh erroneously assigned to it in 1883. Contained in this head is the story of Vertebrate Paleontology at the Museum, its first leader, Henry Fairfield Osborn, and of changing ideas in museum research.

The First Brontosaurus: A Headless Specimen

On August 9, 1879 a Colorado schoolmaster reported the discovery of two new dinosaur quarries at Como Bluff, Wyoming to Professor Marsh, one of the two leading paleontologists of that time. Soon afterwards, Marsh's assistant removed the first large brontosaurus ever found.

It took all winter for Marsh's men to exhume the bones of this great beast. A tent that was placed over the quarry provided only limited protection from the blowing wind and snow. On February 5, 1880, one worker wrote that he was digging at the bottom of a narrow pit 30 feet deep. Temperatures hovered between 20 and 30 degrees below zero, as snow blew down into the pit, covering the bones almost as fast as they were unearthed.

The physical hardship paid off. The resulting brontosaurus, mounted at Yale's Peabody Museum in 1929, was and still is one of the most complete skeletons of its kind ever found. It lacked only a few neck bones, the end of its tail and assorted foot bones. Apparently it also lacked a head.

Perhaps this rather notable lack posed less of an obstacle to Marsh than it should have. The reconstruction of brontosaurus published by Marsh in 1873 did have a head, but it was based on a badly crushed specimen found at Quarry 13 about 4 miles away from the rest of the brontosaurus skeleton. In a revised reconstruction published several years later, Marsh used a slightly more complete skull taken from a site nearly 400 miles away.

These reconstructions were the first published drawings of what brontosaurus or any of its sauropod relatives may have looked like. While it was not unreasonable for Marsh to assume that the large skulls he used may have belonged to an animal the size of brontosaurus, he neglected to mention that neither of them was found with the rest of the skeleton; they didn't necessarily belong to the animal.

"Marsh needed a head, so he guessed," explained Professor John McIntosh, a world authority on sauropods. "Most of his guesses were remarkably accurate but this one was not."

As it turned out, the head really belonged to a related sauropod, the stocky *Camarasaurus*. Quarry 13, from which Marsh got the head, has since yielded parts of four such skeletons and some bones from *Diplodocus*, another important sauropod, but no identifiable remains of brontosaurus.

Of course, none of this was known to Marsh in 1883. Paleontologists at the turn of the century did not know very much about these great beasts. The very first dinosaurs had been found only 34 years earlier in 1845. Dinosaur finds preceding the Como Bluff dig had been limited and fragmentary. None had included heads or even complete necks or tails. As a result, some of the early reconstructions were wildly inaccurate. The first *Iguanodon*, for example, was depicted with what turned out to be a claw on the end of its nose!

But turn of the century paleontology was handicapped by more than limited knowledge. Two of the great early dinosaur hunters were embroiled in a notorious feud, a rivalry that was carried as far as the front page of *The New York Herald*. In a race to be the first to publish, Marsh and his arch rival Edward Drinker Cope named new dinosaurs almost as fast as they could dig them up, basing their descriptions on bits of neck or tail. This contest was due in part to the fact that in paleontology, discovering a specimen does not guarantee fame or prestige to the discoverer, rather the first person to publish a description gets credit for a new species, and the right to name it.

In their haste, Marsh and Cope generated so many double and triple names for the same dinosaur that it took scientists decades to sort them all out. Marsh's brontosaurus turned out to be a larger individual of *Apatosaurus*, another dinosaur that he himself had discovered two years earlier!

The American Museum of Natural History Brontosaurus: Headless Again

Henry Fairfield Osborn, who started the Department of Vertebrate Paleontology at the Museum of Natural History in 1891 and went on to become its president for 25 years, understood the popular appeal of Marsh's dinosaurs. Twenty years after Marsh's find at Como Bluff, Osborn organized the first Museum expedition there. That summer the remains of an enormous brontosaurus were found just downstream from the site of some of Marsh's most famous discoveries.

During the next eight years the Museum collected vast numbers of sauropods from these and other deposits in Southeastern Wyoming. This time great quantities of bone were shipped to New York, instead of to the Peabody Museum in New Haven, for which Marsh had previously done his collecting. In 1898 alone, over 100 boxes containing 60,000 pounds of bone were shipped back to the American Museum of Natural History, in two special railroad cars provided by Museum trustee J. Pierpont Morgan.

It took an entire summer to remove the giant reptile's bones from the earth and prepare them for shipment. The Museum was painstakingly careful; instead of simply extracting the fractured bones and risking severe damage, whole blocks of skeletons were taken out and wrapped in a plaster jacket. This innovation enabled the Museum to build and exhibit its brontosaurus in less than a decade. In contrast, Marsh's beast would not be ready for display at Yale's Peabody Museum for another 20 years because the bones were so badly damaged when they were removed from the quarry.

Mounting the enormous dinosaur occupied Museum staff almost continuously for seven years. "Nearly two years were spent in carefully removing

the bones from the surrounding rock, piecing together, cementing and restoring the missing parts of bone," according to a 1906 account by Museum Curator, W. D. Matthew. "The articulation and mounting of the skeleton and modelling of the missing bones took an even longer time." Of the final mounted brontosaurus, about 66% is from the principal specimen. The right thigh bone and a few other bits were taken from an incomplete brontosaurus that was found nearby. The end of the tail was taken from another individual, and parts of the right foot from a fourth. A few toe bones come from other skeletons and the rest is plaster. There was still no head.

On With Its Head!

Head or no head, Osborn did not intend to mount his dinosaur without one. Chief Preparator Adam Hermann created a likely looking head modelled after jawbones from Marsh's 1879 brontosaurus and a large *Camarasaurus* skull from the Museum's collection. The entire skull and first four neck bones were sculpted from plaster and based on Marsh's second restoration.

The creature's stance had to be worked out by fitting together the available bones, a task comparable to completing a jigsaw puzzle with half the pieces either broken or missing.

Notwithstanding the imaginations of movie directors and Hanna Barbara, no one has ever seen a dinosaur in the flesh. Unable to examine a living brontosaurus, preparators dissected the limbs of alligators and other living reptiles. Our brontosaurus originally looked slightly bow-legged until new evidence made it clear that its legs must have been completely rotated under its body, much like our own.

At last, on February 10, 1905, our brontosaurus was completed, or seemed to be. It was mounted with the same head it bears to this very day.

New evidence was to be presented in 1915 that would seriously challenge the head our brontosaurus bore upon its vertebrae. The March issue of *Rotunda* will complete this tale of paleontological intrigue.—Darrel Schoeling



Chief Preparator Adam Hermann, creating a "likely looking" head



Our beloved brontosaurus. Perhaps it's just as well that the head is not shown in this photograph.

"Come Together People of Africa, from Wherever You Abide . . ."

Black History Month

at the Leonhardt People Center, and the Kaufmann and Linder Theaters.
Saturdays and Sundays in February. Free with Museum admission.



Langston Hughes is one of several black poets whose works will be read this month.

In 1926 the first nationally organized celebration of Black history and culture took place in a small number of schools and churches. Called Negro History Week, it was launched with only a handful of programs by author and historian Carter G. Woodson. Woodson's Association for the Study of Afro-American Life and History (ASALH) became the first organization to promote a serious and scholarly study of Black history.

Throughout the civil rights movement of the sixties and seventies, ASALH acted as a

national clearinghouse for information on the Black experience. In 1980, Woodson's nationwide celebration of Black history was expanded from one week to the entire month of February.

For over a decade the American Museum has participated in this observance of African-American traditions. This year, the African-American program of the Department of Education offers a series of programs on music, drama, arts, crafts, and history that illustrate the cultural richness and diversity of

Black heritage. The programs will run continuously in the Leonhardt People Center, Saturdays and Sundays, from 1:00 p.m. to 4:30 p.m.

Each weekend, a different theme will be emphasized. On **February 4 and 5**, the theme is "Creativity." There will be a poetry reading featuring the work of Donald Greene, Langston Hughes, Niki Giovanni, and others. Rafala Green will give a lecture demonstration of contemporary Black women artists, and the interpretive dance group, Variables of Seven, will present a

"Salute to Our African Heritage through Dance."

A highlight of this weekend will be a dramatic presentation by the *Gaptooth Girlfriends*, a group of female poets, writers and actresses who use poetry to dramatize the lives of third-world women. The program, entitled "Looking Back", will be presented in the Kaufmann Theater on **Sunday, February 5**, at 2:00 and 3:30 p.m.

"Africa" is the theme on **February 11 and 12**. Presentations will include a demonstration on African carving by Mensa Dente, a program of Liberian folklore, dance, and music by Nymah Kumah, and a lecture by L.D. Frazier on Egypt.

The Apprentice Dance Company and their Children's Performing Workshop will perform African festival dances in the Kaufmann Theater on **Sunday, February 12**, at 1:00 and 3:00 p.m. Entitled "A Touch of Folklore and More", this program includes *Lamba*, a dance done for passages in life such as births, deaths, and weddings, and *Goombe*, which calls all dancers, saying "Come together, people of Africa from wherever you abide. Bring forth your songs, your dances, your rhythms to the dancing ground and we will fuse with and create from that ancient source." This program invites audience participation.

February 18 and 19 will offer programs on "Black Struggles and Political Move-

ments", including presentations on Marcus M. Garvey and Nat Turner. "Oral Traditions" will be the theme on **February 25 and 26**, when programs will include Afro-American songs and games and "Ananse Stories", traditional African folktales with musical accompaniment, and the tales of the Gullah people.

A special jazz tribute to pianist McCoy Tyner and drummer Max Roach, performed by the Montego Joe Sextet, will be presented in the Kaufmann Theater on **Sunday, February 26**, at 1:00 and 3:30 p.m. McCoy Tyner, an original member of the John Coltrane Quartet, was one of the first jazz pianists to infuse an African beat into his music. Max Roach is recognized as one of the pioneers of modern drumming style in his work with musicians such as Charlie Parker and Dizzy Gillespie.

Each weekend, short films on Black history and culture will run continuously in the People Center. An exhibit of African Children's Photographs and a slide show called "Leaving Through the Pages of Black History" will be on display throughout February. Please see Museum Notes for People Center hours.

A complete listing of programs appears in the Calendar on page 8. For information on individual programs and performances, please call (212) 873-1300, ext. 514. Seating for all programs is limited and will be on a first-come, first-served basis.

Diving for Knowledge

Wednesday, February 29, 7:30 p.m., Main Auditorium
\$5.00 for Members, \$6.00 for non-members

Theoretically, 45 people should not have met their watery deaths on the fateful night of July 25, 1956. The *Andrea Doria*, in her day, was Italy's most luxurious and modern ocean liner. Built for comfort as well as safety, she was equipped with radar and constructed to withstand accidental collisions with other ships. Yet, wrapped in heavy fog, the *Andrea Doria* collided with the Swedish liner *Stockholm* (which also possessed radar), and took 11 grisly hours to sink beneath the sea. What went wrong?

Peter Gimbel was the first person to dive and photograph the *Andrea Doria*, where she lay beneath 240 feet of water on the continental shelf approximately 60 miles south of Nantucket (265 miles east of the American Museum of Natural History). His film *ANDREA DORIA*:

The Final Chapter, co-produced with his wife Elga Andersen, records the attempt of a team of scuba divers to solve two of the mysteries surrounding the wreck: Did the *Doria*'s safes contain the treasure which they were rumored to contain? And why was such a well-constructed ship unable to evade its eventual doom?

Gimbel and his crew explored the wreck using new techniques of saturation diving which allow divers to work at great depths for long periods of time. The film depicts these diving techniques, as well as what they enabled the divers to see - namely, the 700-ton *Andrea Doria* on her side, lacerated with snagged fishing nets, and the marine organisms which made the wreck their home.

The film also follows the recovery of one of the two

mystery safes, while Hurricane Dennis raged. The recovered safe is now in a holding tank at the Coney Island Aquarium. It has yet to be opened.

Mr. Gimbel is a veteran underwater explorer and photographer whose work includes *Blue Water, White Death*, a film of confrontation between man and shark. He will introduce the program.

This program is presented by the American Littoral Society. To order tickets please enclose a stamped, self-addressed envelope along with payment and a note including your membership category, number of tickets requested and amount enclosed. Mail these to: *The Andrea Doria Film Program*, the American Littoral Society, Sandy Hook, Highlands, N.J. 07732. For further information, please call (201) 291-0055.

The *Andrea Doria*'s safe is hoisted aboard a salvage vessel.



Workshops for Young People



Learning to Draw Animals

Grades 6, 7 & 8
Four Sundays, March 4, 11, 18 and 25
1:00–2:30 p.m.
Fee: \$22.00 (Members \$20.00)

Using a different exhibit hall each week as a drawing studio, students study the basic structures and shapes of animals. Beginning with skeletal anatomy, then adding important muscles, students see how an animal takes form. Quick sketching exercises give practice in drawing skills. Supplies are provided. Taught by Stephen C. Quinn, Senior Principal Preparator-Artist in the Museum's Exhibition Department.

The World of Insects

Grades 7, 8 & 9
Six Sundays, March 4, 11, 18, 25; April 1 and 8
10:30 a.m.–12:00 p.m.
Fee: \$30.00 (Members \$27.00)

From beetles to butterflies to cockroaches, students investigate the habits and habitats of this most successful group of animals. Each week students examine different insects. They learn about insect behavior by studying external and internal anatomy and through observation of live specimens. From reproduction, to defense, camouflage, and mimicry, students gain a greater appreciation for insect biology, adaptability and diversity.

Taught by Betty Faber, Research Associate in the Museum's Entomology Department.

Parent/Child Science Explorations

Grade — Kindergarten youngster with one parent
Five Saturdays, March 3, 10, 17, 24 and 31
3:00–4:30 p.m.
Fee: \$50.00 (includes parent & child) (Members \$46.00)

Limited to 10 youngsters with 10 parents.

Introductory science classes based on an interactive approach that includes guided group discussion, hands-on activities, games and experiments. Puzzles, models of dinosaurs, a live animal demonstration and creative movement are utilized. The activities are designed to help develop a scientific approach to exploration based on a child's natural curiosity. An essential part of the course is parent involvement.

Taught by Susan Bromberg Kleinsinger, Early Childhood Education Specialist.

Nature Activities For The Very Young

Grades 1 & 2
Four Sundays, March 4, 11, 18 and 25
Section A: 10:15–11:15 a.m.

or
Section B: 11:30 a.m.–12:30 p.m.
Fee: \$20.00 (Members \$18.00)

Children participate in springtime nature activities, from growing seeds to learning about different kinds of leaves. They discover animals that are beginning to stir in the warming ground and those returning by air from the south. Using the Alexander M. White Natural Science Center, children explore the seasonal changes that occur in the surrounding city environment.

Taught by Mary Croft, Instructor in the Museum's Department of Education.

Storytelling Around The World

Grades 2 & 3
Four Saturdays, March 3, 10, 17 and 24
Section A: 10:15–11:15 a.m.

or
Section B: 11:30 a.m.–12:30 p.m.
Fee: \$20.00 (Members \$18.00)

Children celebrate the coming of spring with myths, legends, folktales and poems from other cultures. Through the art of storytelling, young listeners experience the wonders of nature and the hopes and dreams of many peoples. Programs combine traditional literature with some contemporary stories, songs and "act-outs" involving group participation.

Taught by Susan Powers, Storyteller and Media Specialist.

Amazing Sea Creatures

Grades 3, 4 & 5
Four Sundays, March 4, 11, 18 and 25
3:00–4:30 p.m.
Fee: \$20.00 (Members \$18.00)

Starting with shells and ending with sharks, children play games beneath the great whale, watch films and gain a greater appreciation for the under-sea world. Children investigate a whale vertebra, baleen, and the inside of a shark, and they handle a living periwinkle. They take home a shell made out of plaster, a shark's tooth picture and a fish print.

Taught by Sydney Buffum, Senior Instructor in the Museum's Education Department.

Mask-Making

Grades 4, 5 & 6
Two Sundays, April 1 and 8
3:00–5:00 p.m.
Fee: \$12.00 (Members \$10.00)

In this two-session course, children are introduced to African and Native American cultures. Using the Museum's exhibition halls, and making their own masks, they begin to understand different ways of life and the spiritual significance behind the masks. Not only do they develop artistic skills, they gain a greater awareness of themselves. Materials are provided.

Taught by Juliette Leff, Art Education Specialist

Saturday Half-day Workshops

Sessions run 10:30 a.m. until 1:30 p.m. Students should bring a bag lunch.

The World of Amphibians

Grades 5, 6 & 7
March 3
Fee: \$10.00 (Members \$9.00)

What is an amphibian? How do frogs communicate? Observe a frog eating. Discuss camouflage, skin toxins and reproduction. Using the Hall of Reptiles and Amphibians as well as slides, students investigate exotic and common representatives of this fascinating group of animals. They make a small terrarium habitat to take home.

Taught by Michael Klemens from the Museum's Herpetology Department.

Origami

Grades 5, 6 & 7
March 10
Fee: \$10.00 (Members \$9.00)

Origami is the Japanese word for the centuries-old international art of folding single sheets of paper, without scissors or paste, to create objects. This introductory workshop will include the folding of a sailboat, a strawberry, a bunny, a fox, and perhaps a panda.

Taught by Michael Shall, Professional Paper Folder and volunteer origami specialist at the Museum.

Asian Puppetry

Grades 6, 7 & 8
March 17
Fee: \$10.00 (Members \$9.00)

Celebrating the arrival of the "Silk Roads-China Ships" special exhibit, students learn how puppetry reflects and reveals Asian cultures. Students reenact the journey of the first pilgrim from China to India seen through the eyes of his mischievous compan-

ion, a monkey. Students also make a simple shadow puppet.

Taught by Sue Gronewald, Asian specialist in the Museum's Education Department.

Exploring With The Microscope

Grades 6, 7 & 8
March 24
Fee: \$10.00 (Members \$9.00)

Learn how to use the microscope. Learn the shape of a salt crystal, and the differences among various types of plant and animal cells. Students prepare their own slides and view living organisms under the microscope.

Taught by Juanita Muñoz, Instructor in the Museum's Education Department

The Scaly World of Reptiles

Grades 4, 5 & 6
March 31
Fee: \$10.00 (Members \$9.00)

Feel a live snake. Watch a lizard feed. Can a turtle breathe underwater? Students observe and discover more about the amazing adaptations and behaviors of these animals. Through slides and a visit to the Hall of Amphibians and Reptiles, students explore habitats, defense and locomotion.

Taught by Dave Brody of the Museum's scientific staff.

Animal Behavior

Grades 7, 8 & 9
April 7
Fee: \$10.00 (Members \$9.00)

How do earthworms communicate? By performing simple experiments, students discover how changes in the environment can cause specific behavior in animals. Using mostly invertebrates, students arrive at their own conclusions by observing how animals react to certain stimuli.

Taught by Juanita Muñoz, Instructor in the Museum's Education Department.



I would like to register for the following lecture series:

Course(s):

Day(s): Time:

Price: (Note that Participating, Donor and Elected Members get a 10% discount on many courses.)

Name:

Address:

City: State: Zip:

Daytime Phone:

Membership category:

I enclose a check payable to the American Museum of Natural History, and a self-addressed, stamped envelope. Mail to Afternoon and Evening Lecture Series, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024

The Lectures That Come in Spring

Beginning February 21, 1984



Masters of the Wok, to be premiered this spring

Spring brings more than rain, warmth and flowers. Beginning February 21, the Department of Education offers you a medley of afternoon and evening lectures, covering everything from edible plants to Indian potlatches. You can choose to be a spectator at fascinating filmed scenes and the recipient of unusual knowledge, or the creator of artwork and cuisine that have roots in many different cultures and times.

Multiple aspects of anthropology are combined in courses such as *Objects of Bright Pride Revisited*, an introduction to Northwest Coast Indians and the significance of their art. Totem poles and shamanistic charms are among the art objects to be discussed, regarding both their beauty and their historical and ritual significance.

Silk Roads — China Ships complements a special new exhibit of the same name, opening at the Museum on February 17 (see page 1 for article and Members' Reception).

Archeology, Buddhism, legends and ceramics are just a few of the topics to be featured in this series, which explores routes of trade that flourished thousands of years ago up until the early twentieth century, linking ancient world powers of the East and West.

Anthropology Through Film features nine films which depict cultures and rituals as diverse as those of the Hopi Indians, ritual shark hunters of Papua New Guinea, and members of a college fraternity in Pennsylvania. Several of the films are being premiered as part of this program.

Other courses offered this spring include hands-on crafts such as weaving and origami, and field trips on land and sea.

For registration and complete information about spring courses, please consult the January *Rotunda* or call the Education Department at (212) 873-7507 for a free brochure.

Museum Notes

Special Exhibitions

Silk Roads/China Ships. February 17 through May 12. An exhibit of more than 300 artifacts illustrating 2,000 years of commerce in goods, technology, art and ideas which traveled the major trade routes between Europe and the Orient.

Right Through the Roof! The Wethersfield Meteorites. Through March 31 in the Arthur Ross Hall of Meteorites. Two meteorites which struck houses in Wethersfield, Connecticut in 1971 and 1982 are on exhibit. Says Martin Prinz (Mineral Sciences), "The odds of (a meteorite) striking a town, much less a house, are miniscule. The probability of two meteorites striking houses in the same town is incalculable."

March at the Museum

China and the Silk Route. Weekends from 1:00 to 4:30 p.m. Leonhardt People Center.

Workshops for Young People. Begin Saturday, March 3.

Man and Nature Lectures. Wednesdays, March 7, 14 and 21. Reservations required.

A Panther and a Python with Bill Robinson. Sunday, March 11. Reservations required.

Good Time Duo. Sunday, March 18, at 2:00 p.m.

Programs and Tours

Museum Highlights Tours. For the new Museum visitor as well as the veteran Museum goer, the Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. The tours leave regularly from the second-floor Information Desk. If you wish to join a free tour, please ask at the

information desks for specific tour times.

Discovery Tours. The Museum offers exciting and unusual tours of exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information about tours and itineraries, write to Discovery Tours at the Museum or call 873-1440.

Natural Science Center. The Center introduces young people to the varied wildlife, plants, and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, from 2:00 to 4:30 p.m., and Saturday and Sunday from 1:00 to 4:30 p.m. The Center is closed Mondays.

People Center. Ethnic programs featuring dance, music, films, lectures, and workshops are presented on weekends from 1:00 to 4:30 p.m.

Discovery Room. Children are delighted to touch and handle natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed on a first-come, first-served basis at the first-floor Information Desk. The room is open only on weekends from 12:00 to 4:30 p.m. Recommended for ages 5 to 10.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street Lobby near the Great Canoe. Schedules and films may vary, so call the Naturemax Recording for current information before visiting the theater: (212) 496-0900. Museum Members receive a 50% discount.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m.

American Museum Restaurant. Luncheon is served daily from 11:00 a.m. to 3:00 p.m. Afternoon tea is served from 3:00 to 5:00 p.m. Dinner is served Wednesday, Friday, and Saturday evenings from 5:30 to 7:30 p.m. The American Museum Restaurant is located next to the cafeteria, in the basement. Museum Members receive a 10% discount.

Museum Parking Lot. Located on 81st Street. Open Monday through Thursday: 9:30 a.m. to 9:30 p.m. Friday through Sunday: 9:30 a.m. to 12:30 a.m. Rates are \$6.00 for cars, \$7.00 for buses. Parking is limited.

Lion's Lair. Relax and enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station. Museum Members have visiting privileges at this outpost. If you are planning a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For visits of more than one week, applications should be made to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Coat Checking. For your convenience the coat check room is located in the basement next to the cafeteria, and on the second floor at the main entrance. There is a 50¢ charge per item.

The Drifters

Tuesday, February 14, 7:30 p.m.
Main Auditorium
Free and open only to Members

The immediate ancestors of modern North American mammals such as armadillos and opossums did not originally live on this continent. How did they get here? In Southern Alaska paleontologists have uncovered a fossil record for certain warmth-loving plants which never lived at that latitude. What is the explanation?

Whether you stand atop a small island or giant continent, the land beneath your feet continues to move and change in ways that profoundly affect not only the physical appearance of the earth, but the plants and animals that have evolved here.

As some land masses moved, they carried plant and animal passengers with them. When bodies of water dried up or land rose above sea level, bridges were formed and organisms journeyed over them.

In *Tectonic Travelers* Dr. Malcolm McKenna (Curator, Department of Vertebrate Paleontology) will discuss fossil and modern animals both as passengers and nomads on a constantly changing planetary surface. He will speak of geological processes such as continental drift and land bridge formation which have

affected the distribution of flora and fauna over millions of years.

Dr. McKenna will elucidate biogeographical paradigms which are as fascinating and enigmatic as their names suggest. "Noah's Ark" and "grounded Viking funeral ships" are two such theories, which help explain how various terrestrial plant and animal species are what and where they are today.

Tectonic Travelers is free and open only to Members. Please use the adjacent coupon to register.

Tectonic Travelers, Tuesday, February 14. This program is open only to Members of the Museum and their guests. Participating Donor and Contributing Members are entitled to six free tickets. Associates are entitled to one. Additional tickets may be purchased at \$4.00 each.

Please send me _____ tickets

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to *Tectonic Travelers*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

Sun

Mon

Tue

Wed

Thu

Fri

Sat

5 1:00-4:30 p.m. *Black History Month. Creativity:* Focus is on poetry, the visual arts, and dance. Leonhardt People Center. Free. (See page 5.)

2:00 and 3:30 p.m. "Looking Back" Gapsiooth Girlfriends. A group of poets, writers, and actresses in a dramatic presentation. Kaufmann Theater. Free. (See page 5.)

6 Members of the Archeology Tour to Mexico arrive in Mexico City. For information on future trips, call (212) 873-1440.



Scott Joplin

1 7:45 p.m. *Amateur Astronomers Association.* Kaufmann Theater. Free

New Moon

2 7:00 p.m. *Systematics Discussion Group.* Room 419. Free.

3 7:30 p.m. *The Dream Keeper Speaks: The World of Langston Hughes.* Kaufmann Theater. Free.

4 11:00 a.m. *New York Map Society.* Room 129. Free.

1:00-4:30 p.m. *Black History Month. Creativity.* Focus is on poetry, the visual arts, and dance. Leonhardt People Center. Free. (See page 5.)

Moon is at apogee.

8

9 First Quarter (half moon)



Billie Holiday

11 1:00-4:30 p.m. *Black History Month: Africa.* Egypt Through the Eyes of L.D. Frazier — Civilization along the Nile River. An African Craftsman with Mensa Denie. Liberator folklore, dance, and musical instruments

Authentic African Arts with Nymah Kumah. Leonhardt People Center Free. (See page 5.)

12 1:00-4:30 p.m. *Black History Month.* Leonhardt People Center. Free. (See page 5.)

1:00 and 3:00 p.m. A Touch of Folklore with the Apprentice Dance Company and the Children's Performing Workshop. Kaufmann Theater. Free. (See page 5.)

2:00 p.m. New York Shell Club. Room 419. Free.

13

14 7:30 p.m. *Tectonic Travelers. Special Members' Program.* Free and open only to Members. Reservations required. Audiotum. (See page 7.)

15

16 Full Moon

17 Silk Roads-China Ships exhibition opens in Gallery 3. (See page 1.)

Moon is at perigee.

18 1:00-4:30 p.m. *Black History Month. Black Struggles and Political Movements:* In Praise of Marcus Garvey with Quasia Tukuju. Life Styles of African-American Muslims with Sohida Samad. Nat Turner, Alias the Prophet: a dramatic piece by Clifton Powell. Leonhardt People Center. Free. (See page 5.)

19 1:00-4:30 p.m. *Black History Month.* Leonhardt People Center. Free. (See page 5.)

1:00 p.m. *American Cetacean Society.* Room 319. Free.

2:00 p.m. N.Y. Turtle & Tortoise Society. Room 129

Free.

2:00 p.m. N.Y. Paleontological Society. Room 426. Free.

20

21 8:00 p.m. *Entomological Society.* Room 426. Free.

Education Department Spring Lectures begin today. (See page 7.)

22

23 7:30 p.m. *Special Members' Viewing.* *Silk Roads — China Ships.* Reservations required (See article page 1.)

8:30 p.m. N.Y. Microscopical Society. Room 419. Free.

Last Quarter (half moon)

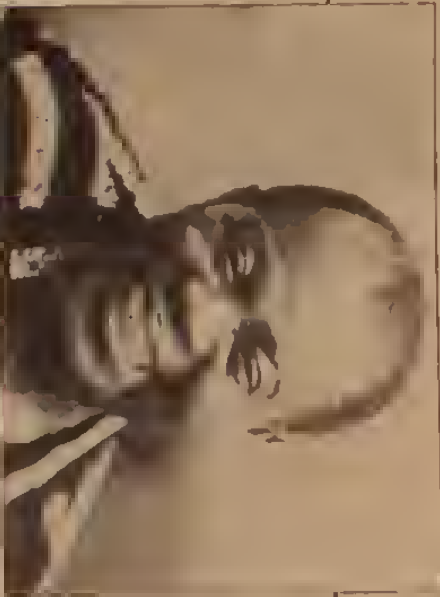
24

25 12:00 p.m. *Wonderful Sky. Members' Childrens Program.* \$2.50 for adults, \$1.00 for children. Reservations required. Sold Out.

1:00-4:30 p.m. *Black History Month. Oral Traditions:* Afro-American Songs and Games. Ananse Stories — Traditional African Folktales. Musical Stories of the Oral Tradition. Leonhardt People Center Free. (See page 5.)

26 1:00-4:30 p.m. *Black History Month: Oral Traditions: Tales of the Gullah People.* Ananse Stories — Traditional African Folktales. Musical Stories of the Oral Tradition. Leonhardt People Center Free. (See page 5.)

1:00 and 3:00 p.m. *Jazz Tribute to Pianist McCoy Tyner and Drummer Max Roach, featuring the Montego Joe Sextet.* Kaufmann Theater. Free. (See page 5.)



Louis Armstrong

29 7:30 p.m. *Diving for Knowledge.* Reservations required from the American Littoral Society. Audiotum. (See page 5.)

February 1984

American Museum of Natural History

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 9, No. 3 March 1984



Stilbite from Ichinokawa, Iyo, Japan

Participating, Donor and Elected Members are invited to a special

Behind-the-Scenes Tour of the Department of Mineral Sciences

Sunday, April 1 and Tuesday, April 3
\$7.00, and open only to Members and their guests

The Department of Mineral Science's collection of almost 100,000 minerals and gems is one of the finest in the world. It contains everything from spectacular star sapphires to beautiful beryl crystals. The Department's scientists are conducting research on such topics as the origins of the solar system, plate tectonics, and the effects of mineral particles on human health.

You can learn more about the Department's collections and research

in a Members-only Behind-the-Scenes Tour this Spring. The tour will take you to research laboratories and storage areas that are never open to the public. Scientists will be on hand to describe their research and the collections with which they work.

You will see outstanding samples of jade, quartz, topaz and other minerals from around the world. Members will visit the meteorite storage area where scientists will explain how the meteorites are collected, and what they tell us

about the formation of various planets

Electron microprobes and x-ray diffraction equipment have opened up new frontiers in mineral science research. Scientists will demonstrate how these machines work and how they aid the researcher.

Coffee, tea and punch will be served at the conclusion of the tour. Please use the coupon on page 2 to register. Early registration is strongly advised, as the number of places is limited.

Steel Harmonies

If you never knew that a steel drum orchestra could play Verdi, Handel, and American gospel music, now's the time to find out.

Page 4

Stompin' in Style

Come and visit the magical place where the Lindy Hop and the Flying Charleston were born, and jazz greats like Benny Goodman and Duke Ellington played.

Page 6

Your Ancestors

The remains of many of your most famous ancestors and relatives will soon be exhibited together for the first time ever in *Ancestors: Four Million Years of Humanity*. Programs for the public and a special Members' reception will precede the exhibition's opening on April 13.

Page 3

Heavens!

From the ancients to today's astronomers and far into the future, you can explore space and its many mysteries in a special Members' viewing of *Star Quest*, the Planetarium's newest sky show.

Page 6

Members' Tour of the Month

Silk Roads— China Ships

Free and open only to Members



Courtesy of the Royal Ontario Museum

This coming April, you can join volunteers from the Museum's Highlights Tours program on a journey along an ancient trade route known as the Silk Road.

Your voyage will begin in the exotic Hall of Asian Peoples with an introduction to the Asian silk routes. Then

Lady With Parrot on fabric. From Iran, late 16th-17th century A.D.

you will continue along the route to the new *Silk Roads-China Ships* exhibition in Gallery 3.

You will admire the craftsmanship and detailed artistry of exotic silk textiles, porcelain chinaware, tobacco and spice accoutrements, and many more trade items which originated from far-off lands as diverse as Japan, China, Russia and Great Britain.

You will learn as well of the ideas and cultural values which spread as far from their lands of origin as the trade items on display.

To register for the tour, please fill out the adjacent coupon. For further information, call (212) 873-1300, ext. 594.

Members' Tour: Silk Roads-China Ships

Please indicate a first and second choice of times.

- ☐ Wednesday, April 4 at 7:00 p.m.
☐ Saturday, April 7 at 11:00 a.m.
☐ Sunday, April 8 at 11:00 a.m.
☐ Wednesday, April 11 at 7:00 p.m.
☐ Sunday, April 15 at 11:00 a.m.
☐ Wednesday, April 18 at 7:00 p.m.

Number of people: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *Silk Roads-China Ships*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

A Kaleidoscope of Dance

Sunday, April 8, 1:30 and 3:30 p.m.
 Kaufmann Theater
 \$2 and open only to Members

The origin of shooting stars, the movements of the Hindu god Shiva and the habits of a curious turtle will all be expressed in dance by the Kaleidoscope Dancers, in this program for children ages twelve and under.

In choreography inspired by the Museum's collections, the performers will dance the story of how glaciers were formed, explore concepts of evolution, and evoke the powerful movements of a wolf. They will also celebrate human culture as they perform the Haitian Dance Congo in honor of African slaves who were brought to

Haiti, and the Chinese Ribbon Dance, accompanied by traditional music and the undulating movements of long, red ribbons.

The Kaleidoscope Dancers have presented their colorful, fast-paced programs throughout the metropolitan area. Last year they were one of two companies chosen to represent the United States in the International Performing Arts Festival in Canada. They are affiliated with New York University's School of Education, Health, Nursing and Arts Professions.

To order tickets, please use the coupon below.

A Doubly Good Time

Sunday, March 18
 1:00 and 3:00 p.m.
 Kaufmann Theater
 Free.



Actor-Singer Don Oliver

From songs sung in a hot summer field to the lifting of voices in gospel music, follow the evolution of indigenous American music as actor-singer Don Oliver and pianist Michael Skloff perform a delightful repertoire of music designed especially for children.

In this performance including work songs, calls, chants, field hollers, spirituals, blues and even Boogie Woogie, *The Goodtime Duo* presents American music with an emphasis on the oral traditions which influenced so many of its forms.

The Goodtime Duo, is sponsored by the African American Program of the Museum's Education Department in conjunction with the New York Committee for Young Audiences. Seating is on a first-come, first-served basis, and Members are advised to arrive early to avoid disappointment. For further information please call (212) 873-1300, ext. 514.

ROTUNDA

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Kaleidoscope Dancers. Sunday, April 8 This program is open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to six tickets at the Members' price of \$2.00. Associates are entitled to one. Additional tickets may be purchased at \$4.00 each.

Number of Members' tickets	X \$2.00	\$
Number of additional tickets	X \$4.00	\$
Total amount enclosed:		\$

Please indicate a first and second choice of times
 _____ 1:30 p.m. _____ 3:30 p.m.

Name _____

Address _____

City _____ State _____ Zip _____

Daytime Phone: _____

Membership category _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Kaleidoscope Dancers*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Behind the Scenes Tour (Open only to Participating, Donor and Contributing Members)

Tours will leave at fifteen-minute intervals. We will send you a confirmation card by mail indicating the exact time your tour will start. Please indicate a first, second, and third choice.

- ☐ Sunday, April 1, between 10:30 and 12:00 noon
☐ Sunday, April 1, between 1:00 and 2:30 p.m.
☐ Tuesday, April 3, between 5:15 and 6:00 p.m.
☐ Tuesday, April 3, between 6:00 and 7:30 p.m.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Enclosed is my check for \$ _____ to reserve _____ places at \$7.00 each for the Behind-the-Scenes Tour.

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Behind-the-Scenes Tour*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Your Ancestors are Coming. . .

Ancestors: Four Million Years of Humanity

Exhibition opens in Gallery 1, Friday, April 13

For the first time ever, unique and famous fossils from all over the world which have helped unfold the story of human origins will be displayed under one roof at the Museum. Many of these fossils, coming from 25 institutions around the world, have never before left their home institutions. In some cases they have never even been on public display.

This unprecedented event will enable both the scientific community and the public to view the original, tangible evidence of the evolution leading to the development of modern *Homo sapiens*. Beginning with *Aegyptopithecus*, the 30 million year old pre-human ancestor of both people and apes, the exhibition will document each major period of human development. You

will see fossils of the earliest humans, represented by several species of *Australopithecus* including the Taung Child of South Africa, and more modern members of the human family tree such as Java man, who was of our own genus *Homo*.

Prior to the opening of the exhibition, scientists from around the world will convene at the Museum to make side

by side comparisons of these significant fossils. Until now, comparisons have been limited to replicas, photographs and drawings — often inadequate substitutes for the original material. A scientific symposium, closed to the public, will follow the comparative sessions, marking an important exchange of information on an international level. But scientists are not the

only beneficiaries of this first time ever exhibition! During the two weeks before the exhibition opens, experts will share the significance of their finds and the excitement of discovery with the public, in the special programs below. Members are invited to a private preview of the exhibition. Please use the coupons on this page to register for these exciting events

This exhibition is supported by an indemnity from the Federal Council on the Arts and the Humanities



Dr. Elwyn Simons will speak of 30 million year old Egyptian fossils.



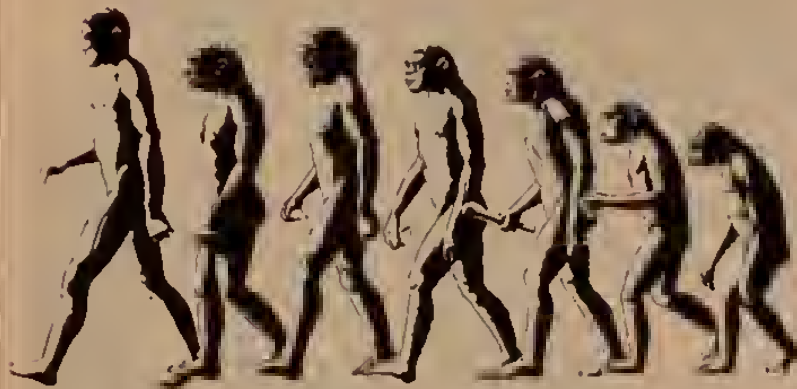
Dr. Donald C. Johanson will speak of piecing together fossil puzzles.

Participating, Donor and Contributing Members are cordially invited to a Preview of

Ancestors: Four Million Years of Humanity

Wednesday, April 11 or Thursday, April 12

Enjoy the piano bar in the adjoining Arthur Ross Hall of Meteorites.



Copyright L. S. B. Leakey Foundation

Members' Opening for Ancestors.

Wednesday, April 11 or Thursday, April 12.
Please indicate a first and second choice of times.

April 11: 5:30 p.m. 6:30 p.m. 7:30 p.m.
April 12: 5:30 p.m. 6:30 p.m. 7:30 p.m.

Number of people: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Ancestors, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

A Forum: Searching for our Ancestors

Thursday, April 5

7:00 p.m.,

Main Auditorium

\$7, \$5 for Members and students with I.D.

Hunting the Dawn Apes of Africa. Dr. Elwyn Simons, Director of the Duke University Primate Center will discuss the results of his expeditions to the 30 million year old fossil beds of the Fayum region of Egypt. The fossils found in this area have yielded remains of the probable common ancestor of humans, apes, and monkeys.

New Discoveries of Early Human Fossils from Southern Africa. Dr. Phillip Tobias, Head of the Anatomy Department of the University of Witwatersrand, will discuss excavations at the classic site Sterkfontein in the Transvaal, southern Africa. This area contains the best known fossils of *Australopithecus africanus*, as well as early members of our own genus *Homo*.

Modern Fieldwork in Paleoanthropology. Dr. F. Clark Howell, Professor of Anthropology at the University of California, Berkeley, will discuss the results of his numerous expeditions to the Omo Valley of Ethiopia, a site which has become the standard for dating the events of early human evolution.

Dr. Eric Delson, Professor of Anthropology at Lehman College and Research Associate in our Department of Vertebrate Paleontology, will moderate the program.

Lectures for the Public

7:00 p.m., Main Auditorium.

\$7, \$5 for Members and Students with I.D.

Monday, April 9. Our African Ancestors: Four Million Years of Controversy.

Many alternative and controversial views are held about our evolutionary history.

Dr. Donald C. Johanson, Director of the Institute for Human Origins, will discuss some of the problems inherent in deciphering the fossil record, and trace the discovery of our African ancestors, now dating back four million years.

Wednesday, April 11. Human Nature in Evolutionary Perspective

Dr. Irven DeVore, Professor of Anthropology and Biology at Harvard University, will discuss research on living monkeys, apes and human hunter-gatherers, presenting information which has greatly enriched our knowledge of evolutionary history.

This lecture is given in cooperation with the L.S.B. Leakey Foundation

Ancestors: Four Million Years of Humanity Participating, Donor and Contributing Members entitled to four tickets per program at the Members' price. Associates entitled to one. Additional tickets at non-member prices

Forum: Drs. Howell, Simons and Tobias tickets at \$7
AMNH Members and Students with ID tickets at \$5

Lecture: Dr. Johanson tickets at \$7
AMNH Members and Students with ID tickets at \$5

Lecture: Dr. DeVore tickets at \$7
AMNH Members and Students with ID tickets at \$5

Total amount enclosed _____

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Please enclose check or money order payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Department of Education, AMNH, Central Park West at 79th Street, New York, NY, 10024. For information please call (212) 873-7507.

Symphony of Steel

Wednesday, March 28, 7:30 p.m.
Main Auditorium
\$5 for Members
\$6 for non-members



"King of the Pan Men" is what they called Herman "Rock" Johnston in his native Trinidad. Today Mr. Johnston resides in Brooklyn, New York, but the title still applies. At the age of 46, he continues to revel in the creative activities he first adopted at the age of six — making and playing the pans.

The pan, or steel drum as it is now known, probably came into existence in Trinidad, in the 1940's. It was made from oil cans which were then abundant due to the country's burgeoning oil industry. Steel drums could originally play no more than two tones, and were used almost exclusively for Calypso music.

Today, due to innovators like Mr. Johnston, the steel drum has a much more varied range than it did in its infancy. Some pans can play as many as 36 notes. And the notes are not all that have changed.

The Johnston Fantastic Symphony Steel Orchestra, headed by Mr. Johnston, has a repertoire whose broad range includes but does not limit itself to the traditional Calypso. *Harmonies of Steel*

Symphony of Steel. Wednesday, March 28. Participating, Donor and Contributing Members are entitled to two tickets at the Members' price of \$5.00. Associate Members are entitled to one. All other tickets are \$6.00.

Number of Members' tickets — — — X \$5.00 \$ —
Number of non-members' tickets — — — X \$6.00 \$ —
Total amount enclosed: \$ —

Name: — — — — —

Address: — — — — —

City: — — — — — State: — — — — — Zip: — — — — —

Daytime Phone: — — — — —

Membership category: — — — — —

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Caribbean Programming, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

will include selections from Handel's *Messiah*, Verdi's *La Traviata*, as well as religious hymns, rock, and popular tunes.

The group is composed of Mr. Johnston, his wife, Joan, two sons, a brother and seven

nephews. They play a total of 36 drums, many of which are made and all of which are tuned by Mr. Johnston.

To order tickets, please use the coupon above. For additional information please call (212) 873-1300, ext. 514.

Prey and Predator, Dark and Light

Sunday, March 11, 11:00 a.m., 1:00 and 3:00 p.m.
Kaufmann Theater
Free and open only to Members



Bill Robinson

This albino raccoon is different from its peers. How does this difference affect its life? The great horned owl is an expert hunter. What are the techniques which lead to its success? Both animals are expected to make appearances in the Kaufmann Theater.

As long as the panther lives, it will prey on weaker creatures, such as deer. And as long as the deer lives, it will make a tasty morsel for predators which are larger or stronger, like the panther. Why is the panther such an efficient hunter and how do deer survive from one generation to the next?

The best way to learn about an animal is to watch it, at a minimum distance, with a maximum degree of safety! This is exactly what Mr. Robinson has in store for Museum Members. In *A Panther and a Python* he will present both a black panther and a deer to the audience to illustrate the adaptations of prey and predator, and the relationship between them.

Mr. Robinson will also discuss the role of pigmentation in an animal's relationship to its environment. Is life difficult for an unusually dark or light animal? In the company of an albino raccoon, Mr. Robinson will address this, and many other issues of animal survival.

For ticket information, please call (212) 873-1300, ext. 594.



Bill Robinson

Man and Nature



Dr. Lewis Thomas will speak at the eighth annual Mack Lipkin Man and Nature Lectures. In a series of three Wednesday evening lectures entitled The Developing Human Species, Dr. Thomas will address themes of human ancestry, culture and consciousness. The lectures will take place in the Museum Auditorium at 7:00 p.m. on March 7, 14, and 21. For ticket availability, please call (212) 873-1327.

The Devious Lizard Gets A Head

The Conclusion of a Two-part Dinosaur Tale



Courtesy of the Carnegie Museum of Natural History

The currently accepted skull of *Apatosaurus louisae* (brontosaurus), on exhibit at the Carnegie Museum of Natural History. You may want to compare it to the head depicted in the February Rotunda. One obolous difference is that the correct skull is far more slender than Marsh's reconstruction, which was mistakenly modelled after *Camarasaurus*.

In Part I of this article, (see February Rotunda) the first brontosaurus to be exhibited at any Museum in the world was mounted and placed on display here in 1905. Although the skull assigned it in 1883 by the early great paleontologist, Othaniel C. Marsh, was only a guess — and a wrong one — a head very much like it graces our beast. It is modelled after the head of one of brontosaurus's sauropod relatives, *Camarasaurus*.

For many years, paleontologists were not quite sure which head to give brontosaurus. In 1915 they received a strong hint which could not be ignored.

New Evidence: The Carnegie Museum's Brontosaurus

In 1915, ten years after our brontosaurus was mounted, the Director of the Carnegie Museum, W. J. Holland, reported that a large brontosaurus had been found in a new quarry near Jensen, Utah, now part of Dinosaur National Monument. Moreover, close to the ribs of one large brontosaurus and near the neck of another, lay a large mysterious skull.

Holland became convinced that Marsh had been wrong about his reconstructed brontosaurus head, and that the newly discovered skull was indeed the correct one. In one letter, he went so far as to call Marsh's brontosaurus head a myth.

A quest for the real head became Holland's obsession. In following this quest, he would not only take it upon himself to challenge current paleontological wisdom and the ghost of Professor Marsh, but would challenge Henry Fairfield Osborn — quite an influential figure — and public opinion.

One of Holland's first steps was to write to Professor Charles Gilmore, later to become Director of the U. S. National Museum, asking whether or not Marsh's skull had been found alongside any other brontosaurus remains. Gilmore's answer confirmed Holland's suspicion; it had not. It came from a quarry four miles from the remainder of the brontosaurus skeleton.

Despite his growing conviction that Marsh was wrong, Holland published only one short article on the Carnegie brontosaurus, entitled *Heads and Tails*. In the article, published in 1915, he wrote "The problem [not knowing which head to give such a famous animal] is naturally perplexing and in certain respects amusing. My good friend Dr. Osborn has in a bantering mood dared me to mount the head which we have found [in the Utah quarry] associated with our brontosaurus. At moments I am inclined to take his dare in spite of Professor Marsh's action, being not trained to accept *ipse dixit* of even so learned an authority as Professor Marsh was."

Holland never had the courage to install the skull on the new brontosaurus skeleton, which had been

mounted at the Carnegie Museum in 1915. Neither did he completely give in to popular opinion. He mounted the skeleton with no head at all. And for twenty years it stood that way!

Holland waited the rest of his life for someone to vindicate him by finding a brontosaurus that actually had its head attached — a discovery which, to the present day, has never been made. Fossil heads are notoriously fragile and rare in dinosaur quarries.

Whether Holland was genuinely uncertain which head belonged atop brontosaurus or simply too intimidated by Osborn's prestige in the scientific community to challenge him, is unclear. As Eugene Gaffney, current Curator of Fossil Reptiles at the Museum, pointed out: "We mounted it first [with Marsh's head] and Osborn had the prestige to keep it that way."

Although Osborn apparently didn't like Holland very much, Holland had a certain power over the distinguished scientist. Osborn awaited Holland's publication of a description of the new find. Because the Carnegie skeleton was the first sauropod ever found with its neck and tail intact, such a monograph would be an important contribution to the science of paleontology. Despite Osborn's urgings, Holland refrained from completing the monograph — although by 1916 he had prepared exquisite engravings of every bone in the brontosaurus' body, some in triple views.

Holland retired in 1922, still intending to finish the monograph. After his retirement, the Carnegie Museum's Board of Trustees restricted Holland's paleontological duties to the description of *Apatosaurus* (brontosaurus's currently accepted scientific name). Little good it did them, or anyone else for that matter, for little progress was made on the project.

Holland's successor as Director of the Carnegie Museum, Douglas Stewart, was inclined to help Osborn. He wrote in a confidential letter dated September 12, 1923, "I am afraid our friend Dr. Holland has not done anything with it [the monograph] and therefore it will be necessary to take other steps." There was talk of getting someone else to finish the monograph.

Six days later Osborn sent a handwritten memorandum to one of his curators, W. D. Mathew, to ask his advice. "See confidentially very important letter from Director Stewart and my reply. The jealousy of Dr. Holland will keep me away from the sauropoda until he passes into the heavenly kingdom. Dr. Stewart and the trustees are most kindly disposed towards me and I believe are ready to do what they can, but Dr. Holland objects."

It is still not clear from the existing records exactly why the elderly Holland refused to publish for so many years. One is reminded of Melville's *Bartleby* the scrivener who, when asked by his superior to

perform the tasks of his profession, quietly responded "I would prefer not to."

Dr. Holland died on November 6, 1935 without completing the monograph. That same month a large *Camarasaurus*-like skull closely resembling the model on exhibit at our museum, was fitted atop Carnegie's brontosaurus by Charles Gilmore.

"I am quite sure," said John McIntosh, an expert on dinosaurs, "Gilmore was absolutely aware the head was a *Camarasaurus*." McIntosh tells a story that one day Gilmore suggested that the Carnegie put the head up there, "just so that there would be one."

It was Gilmore who finally completed the *Apatosaurus* monograph in 1936 — over 15 years after the original discovery. In it, he concluded that the correct skull was still a mystery. In spite of the monograph, the *Camarasaurus*-like head remained on the Carnegie brontosaurus. Holland's dream seemed to have quietly died.

The Quest Begins Anew

The matter rested for more than 30 years — until John McIntosh, then a Research Associate at the Carnegie Museum, read through Holland's correspondence, field notes and quarry maps. He reconstructed the 1915 discovery, and in two papers written with David Bermann, convinced the paleontological world that, indeed, Holland had been right all along.

On October 20, 1979, the discredited skull on the Carnegie Museum's brontosaurus was replaced with the correct one. Similar corrections soon followed in museums across the country — everywhere but in New York. This switch seemed to make a lot of sense; recent studies have proven that brontosaurus is more closely related to *Diplodocus*, whose head the new skull resembles, than to *Camarasaurus*. The new skull is almost certainly the correct one.

It's Not That The Head is Too Small.

If it had been simply a matter of changing the head, this would have been done long ago. Martin Cassidy, head of the Museum Reproduction studio, made a fiberglass replica of the currently accepted brontosaurus head several years ago; but it doesn't look very good next to our dinosaur. The problem is not exactly that the head is too small. All five large brontosaurus skeletons are close to the same size. Rather the neck is too big.

Alas, the neck of brontosaurus, as originally reconstructed by Marsh, was also incorrect. The Carnegie brontosaurus found by Holland in 1915 shed new light upon brontosaurus's skeletal structure. It has 15 neck vertebrae, two more than previously thought, and the last two neck bones are surprisingly small. The hole at the back of the skull which fits onto the neck is about the size of a silver dollar — and this is in an animal over 70 feet long! Although at first glance it may not seem important, the end of the neck in our brontosaurus is 50 percent too large, creating quite a problem, you can't put a chimp's head on a gorilla's neck.

George Gardner, chairman of Exhibition and Graphics at the Museum, proposes a possible solution. "We may have to put a sculptor to work and make a couple of fake vertebrae."

According to McIntosh, this is no easy feat. "It may be a tremendous problem to model cervicals (neck bones). They are the hardest things to do." But because Gilmore's 1936 monograph contains three views of each cervical vertebra with exact measurements, the project is feasible, although certainly not easy.

Eugene Gaffney voices an additional worry. "In just running a vacuum over the skeleton and struggling with the skull a bit," he reported, "two ribs swung out and smashed. It's not worth it. We could do something more interesting."

Concerning the skull's identity, his idea is to leave the historic head on our brontosaurus and display the new head beneath it with an explanation of how the brontosaurus finally got a head.

After all, the wrong head, in its own way, is as important as the right one. It contains in its ancient contours almost a century of paleontological history.

Brontosaurus remains one of the world's most popular animals, scarcely handicapped by having died out more than 100 million years ago. Marsh gave it the name brontosaurus, which in Latin means "thunder-lizard." But its scientific name Apatosaurus, means "devious lizard." Given its history, the latter name may be even more appropriate.

— Darrel Schoeling

Stompin' at the Savoy

Saturday, March 24, 2:00 and 4:15 p.m.
Kaufmann Theater, Free

People went to dance to the beat and listen to the jazz greats at the Savoy. Swing music, sprouting up in the 1930's, flowered at the Savoy, and dances which rocked the nation, like Truckin', the Lindy Hop and the Flying Charleston were born there.

Before the Savoy, only a group of streetcar bams stood on Lenox Avenue between 140th and 141st Streets. In 1926 the Savoy opened, and made that spot into one of the most famous dance and music landmarks in the world.

It was at the Savoy that Chick Webb and Benny Goodman competed in a battle of the bands, packing the ballroom until 20,000 fans

were turned away. It was there that bands like Al Cooper's Savoy Sultans and Louie Jordan and his Tympany Five played just what a generation of dancers craved — swing music with no-frill arrangements and plenty of rhythm.

The Savoy closed down in 1958, but the magic of that place and time live on in music, memory and *Stompin' at the Savoy*, a collection of film clips and segments which capture dance and music styles that spread like wildfire not only through black American culture, but throughout this country and Western Europe.

You'll see and hear jazz greats like Cab Calloway, Duke Ellington, and Lionel

Hampton.

As you watch dancers swinging to Swing and hopping in the Harlem jump style you'll understand why the Savoy came to be known as "The Home of Happy Feet."

Stompin' at the Savoy is presented by the African American Program of the Department of Education, and Steve Hartig Productions. A special thanks to Mr. Ernest Smith, who made the films available and will introduce the program. For further information, please call the Department of Education at (212) 873-1300, ext. 514.

The program is free and open to all Museum visitors. Members are advised to arrive early to obtain seating



Lindy Hoppers jumping high in 1941

Members' Reception

A Heavenly Quest

Thursday, April 26
6:15 and 7:30 p.m.
Hayden Planetarium
\$2.50 for adults
\$1.50 for children
Open only to Members



Members are invited to travel in time and space at the Hayden Planetarium.

The ancients scanned the heavens and came to know them well. From mountaintop, temple, or circle of standing stones, they watched the stars, memorized the patterns they formed, and called them by name. They watched the moon too, sweeping through its phases.

Taking cues from these lights in the sky, they fash-

ioned clocks and calendars to help regulate life on earth. Sensing a great energy emanating from the heavens, they both worshipped and feared the world above.

Whether a source of order or terror, the heavens have always inspired awe and wonder. Members are invited to trace the history of astronomy from the ideas of those

ancient stargazers to today's space technology, and fly into space to visit other worlds, in a special viewing of *Star Quest*, the Planetarium's newest show.

Prior to the sky show, Members can sip refreshments in the Guggenheim Space Theater, as images of constellations, nebulae, and other worlds are projected upon the wall. As an additional treat, several of the Planetarium's production staff will be on hand to display artwork, models and special effects instruments and explain how these materials are used to create the Planetarium's sky shows.

Afterwards, Members will follow the history of astronomy, as old mysteries are solved only to be replaced by new ones. Using the world's largest computer automation system and over 100 special effects projectors, *Star Quest* will transport you into the future, as a space probe is launched to descend into the hurricanes of Jupiter and explore Halley's Comet. Beyond the year 2000 you will witness bases on the moon, and spacecraft en route to far-off stars.

To register for this program, please fill out the adjacent coupon. For additional information call (212) 873-1327.

Members' Reception for *Star Quest*. Thursday, April 26.
Please indicate a first and second choice of times.

6:15 p.m. 7:30 p.m.

Number of adults' tickets X \$2.50 \$
Number of children's tickets X \$1.50 \$
Total amount enclosed: \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Natural History, Central Park West at 79th Street, New York, NY, 10024.

Happenings at the Hayden

Sky Shows

Cosmic Mysteries. Through April 2. Are UFO's visitors from far-off stars? Could a giant meteorite crashing through the earth's atmosphere have caused the extinction of the dinosaurs? *Cosmic Mysteries* explores these and other fascinating questions.

Star Quest. April 5 through September 3. See article on this page for a description of this new sky show.

Sky Show Times

Weekdays 1:30 and 3:30 p.m.

Saturday: 11:00 a.m. and hourly from 1:00 to 5:00 p.m.

Sunday: hourly from 1:00 to 5:00 p.m.

Admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member prices please call (212) 873-8828.

Laser Zeppelin.

New laser visuals combine with the music of Led Zeppelin to create a unique experience of sight and sound.

Friday and Saturday at 7:30, 9:00 and 10:30 p.m.

Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased in advance at Ticketron outlets, or at the Planetarium box office on the night of the show. For more information about the laser show, call (212) 724-8700.

School Shows

The Planetarium offers many programs for young children. Of special interest is *Max's Flying Saucer*. In this charming sky show, a little boy named Max sees a UFO which no one he knows can identify. That very night a friendly alien named Fhui (pronounced phooey) gives Max a ride aboard his flying saucer and teaches him many things about the universe. Perhaps the most important lesson Max learns is how to be a good observer.

For school information call (212) 873-5714. For general information call (212) 873-8828.

Times and prices are subject to change. When in doubt, call ahead!



Members receive a 10% discount at the Planetarium's two gift shops.

Museum Notes



Buddhist Monks, about 1900 A.D., in the exhibit Bicycles and Dragons.

Special Exhibitions

Bicycles and Dragons: Two Views of China. Through July 15. A photographic exhibition in the Akeley Gallery.

Silk Roads/China Ships. Through May 12. An exhibition of more than 400 artifacts illustrating 2,000 years of commerce in goods, technology, art and ideas which traveled the major trade routes between Europe and the Orient. Gallery 3.

For information about group package tours for *Silk Roads-China Ships*, please contact the Office of Guest Services at (212) 873-6380.

Right Through the Roof! The Wethersfield Meteorites. Through March 31 in the Arthur Ross Hall of Meteorites. Two meteorites which struck houses in Wethersfield, Connecticut in 1971 and 1982 are on exhibit.

April at the Museum

Latin American Month. Leonhardt People Center. Weekends from 1:00 to 4:30 p.m.

Members' Behind the Scenes Tour of the Department of Mineral Sciences. Sunday, April 1 and Tuesday, April 3. Reservations required.

A Forum: Searching for our Ancestors. Thursday, April 5 at 7:00 p.m. Reservations required.

The Kaleidoscope Dancers. Sunday, April 8 at 1:30 and 3:30 p.m. Reservations required.

Our African Ancestors: Four Million Years of Controversy. Monday, April 9 at 7:00 p.m. Reservations required.

Human Nature in Evolutionary Perspective. Wednesday, April 11 at 7:00 p.m. Reservations required.

Ancestors: Four Million Years of Humanity. Special Members' Reception and Preview. Wednesday, April 11 or Thursday, April 12. Reservations required.

Star Quest. Thursday, April 26 at 6:15 and 7:30 p.m. Open only to Members. Reservations required.

Programs and Tours

Museum Highlights Tours. For the new Museum visitor as well as the veteran Museum goer, the Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. The tours leave regularly from the second-floor Information Desk. If you wish to join a free tour, please ask at the information desks for specific tour times.

Discovery Tours. The Museum offers exciting and unusual tours of exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information about tours and itineraries, write to Discovery Tours at the Museum or call 873-1440.

Natural Science Center. The Center introduces young people to the varied wildlife, plants, and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, from 2:00 to 4:30 p.m., and Saturday and Sunday from 1:00 to 4:30 p.m. The Center is closed Mondays.

People Center. Ethnic programs featuring dance, music, films, lectures, and workshops are presented on weekends from 1:00 to 4:30 p.m.

Discovery Room. Children are delighted to touch and handle natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed on a first-come, first-served basis at the first-floor Information Desk. The room is open only on weekends from 12:00 to 4:30 p.m. Recommended for ages 5 to 10.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater

is located off the 77th Street Lobby near the Great Canoe. Schedules and films may vary, so call the Naturemax Recording for current information before visiting the theater: (212) 496-0900. Museum Members receive a 50% discount.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday, 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m.

American Museum Restaurant. Luncheon is served Monday through Friday from 11:30 a.m. to 4:00 p.m. Afternoon tea is served daily from 4:00 to 5:00 p.m. Dinner is served Wednesday, Friday, and Saturday evenings from 5:00 to 7:30 p.m. Brunch is served Saturday and Sunday from 11:30 a.m. to 4:00 p.m. The American Museum Restaurant is located next to the cafeteria, in the basement. Museum Members receive a 10% discount.

Museum Parking Lot. Located on 81st Street. Open Monday through Thursday 9:30 a.m. to 9:30 p.m. Friday through Sunday: 9:30 a.m. to 12:30 a.m. Rates are \$6.00 for cars, \$7.00 for buses. Parking is limited.

Lion's Lair. Relax and enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station. Museum Members have visiting privileges at this outpost. If you are planning a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For visits of more than one week, applications should be made to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

The Culture of a City

Saturday, March 17, 11:00 a.m. to 5:00 p.m.
Kaufmann Theater. Free.

The rich ethnic and artistic diversity of New York City comes into sharp focus at the first annual *Folklore Film Festival*, a collection of films which celebrate the qualities and inhabitants which make the Big Apple the unique place that it is.

Featured Films

Style Wars examines the oral history, artistic conventions and leadership of a subculture of graffiti writers.

Hell's Kitchen Chronicle documents community efforts to preserve the character of a neighborhood still housing

many second and third generation immigrant families.

Miracle at Intervale Avenue is based on anthropologist Jack Kugelmass's research on the last synagogue in the South Bronx.

Other recent films will be included in the Festival, presented by the New York City Chapter of the New York Folklore Society. Dr. Bruce Jackson, President of the American Folklore Society, will moderate.

For further information please call (212) 873-1300, ext. 559.



Graffiti — the work of an artist's hand.

Love Your Planet



Madame Nature dances in Let's Take Back Our Planet, an ecological musical to be performed by the Don Quixote Experimental Children's Theater. Sunday, March 4 at 2:00 and 4:00 p.m. in the Kaufmann Theater. Free with Museum admission. For further information, please call (212) 873-1300, ext. 514.

Sun

Mon

Tue

Wed

Thu

Fri

Sat

March 1984

4 1:00-4:30 p.m. *China and the Silk Route. History of Chinese Music; Ceramics in China. Films: Silk Making in China, The Ancient Chinese.* Leonhardt People Center. Free.
2:00 and 4:00 p.m. *Let's Take Back Our Planet.* Free. (See page 7.)

11 11:00 a.m., 1:00 and 3:00 p.m. *A Panther and a Python. Members' Family Program.* Free and open only to Members. Reservations required. Sold Out.
1:00-4:30 p.m. *China and the Silk Route.* (See March 10 listing.) Leonhardt People Center. Free.
2:00 p.m. *N.Y. Shell Club Room* 419 Free.



7 7:00 p.m. *Man and Nature Lecture Series: The Remote Ancestry of Humans.* Reservations required. (See page 4.)
7:45 p.m. *Amateur Astronomers Association.* Kaufmann Theater. Free.

14 7:00 p.m. *Man and Nature Lecture Series: The Education of Humans.* Reservations required. (See page 4.)
7:30 p.m. *N.Y. Mineral Club* Linder Theater. Free.

20 8:00 p.m. *N.Y. Entomological Society.* Kaufmann Theater. Free.
Vernal Equinox (Spring begins at 10:25 a.m.)

21 7:00 p.m. *Man and Nature Lecture Series: The Puzzlement of Humans.* Reservations required. (See page 4.)



18 1:00 and 3:00 p.m. *Good Time Duo.* Childrens' Program. Free. (See page 2.)
1:00 and 4:30 p.m. *China and the Silk Route.* Leonhardt People Center. Free. (See March 17 listing.)
1:00 p.m. *American Cetacean Society.* Room 319. Free.
2:00 p.m. *N.Y. Turtle & Tortoise Society.* Room 129. Free.
2:00 p.m. *Paleontological Society.* Room 426. Free.

26

27

28 7:30 p.m. *Symphony of Steel The Johnston Fantastic Symphony Steel Orchestra.* Auditionum. \$5.00 for Members. \$6.00 for non-Members. Reservations required. (See page 4.)
7:30 p.m. *Lapidary & Gem Society.* Leonhardt People Center. Free.

1 7:00 p.m. *Systematics Discussion Group.* Room 419. Free.

2 New Moon (moon is at apogee)

3 11:00 a.m. *N.Y. Map Society.* Room 129. Free.
1:00-4:30 p.m. *China and the Silk Route. History of Chinese Music; Ceramics in China. Films: Silk Making in China, The Ancient Chinese.* Leonhardt People Center. Free.
Workshops for Young People begin today.

10 1:00-4:00 p.m. *China and the Silk Route. Traditions in Chinese Music; The China Trade East and West. Films: Ancient Chinese; The Chinese American.* Leonhardt People Center. Free.
First Quarter (half moon)

17 11:00 a.m.-5:00 p.m. *Folklore Film Festival.* Kaufmann Theater. Free.
1:00-4:30 p.m. *China and the Silk Route Peking Opera: Traditions in Chinese Music.* Films: *Silk Making in China* The Chinese American. Leonhardt People Center. Free.
St. Patrick's Day Full Moon

24 1:00-4:30 p.m. *China and the Silk Route. Peking Opera: Traditions in Chinese Music. The China Trade. Sculptures and Ceramics.* Films: *Ancient Chinese.* City of Cathay. Leonhardt People Center. Free.
2:00 and 4:15 p.m. *Stompin' at the Savoy.* Kaufmann Theater. Free. (See page 6.)
Last Quarter (half moon)

31 *Right Through the Roof!* The Wethersfield Meteorites, closes today in the Arthur Ross Hall of Meteorites.

American Museum of Natural History

DOTUNDA

For Participating, Donor, and Elected Members of the American Museum of Natural History

Vol. 9, No. 4 April 1984



"Amud" is a Neanderthal from approximately 45,000 years ago.

Your Ancestors Are Coming

Exhibition opens in Gallery 1, Friday, April 13

The fossils of your ancestors are coming to the Museum, although who your ancestors are is quite a controversial topic. *Aegyptopithecus*, thought to be the 30-million-year-old ancestor of modern apes and human beings, will be here. The Taung child, the earliest *Australopithecus* ever discovered, will also be on display. The australopithecines are believed to be the earliest members of the human family.

Approaching more modern times, the original *Homo erectus*, or Java man, many Neanderthal remains, and several fossils of the earliest forms of *Homo sapiens* will come from many

sites in Europe and Africa.

As you walk through this landmark exhibition entitled *Ancestors: Four Million Years of Humanity*, you will learn what fossils are and how they are made, and view many of the world's most famous human and pre-human fossils, representing each major stage of human development.

Visitors will learn what distinguishes humans from our primate relatives. The fossils will be accompanied by information which explains their significance and location on the human family tree. Where applicable, tools and other representations of human culture will be displayed along with the phys-

ical remains of their creators.

The fossils you will see in this exhibition, which hail from many countries, have never before been housed together under one roof. For some the exhibition marks the first time they have ever left their "home" institution or been on public display.

Members are invited to a special reception just prior to the opening of *Ancestors*. There will be music and a cash bar in the adjoining Arthur Ross Hall of Meteorites. Members may register by using the coupon on page 2.

The exhibition is supported by an indemnity from the Federal Council on the Arts and the Humanities.

Latin America Month

Creole music, regional dances, harp-making, tapestries and much more await you this month as the Museum celebrates the diverse art forms and peoples of Latin America.
Page 8

Desert Life

Members will be introduced to a desert where it may rain less than once a year. Yet this arid, salty region of Iran is home to many creatures great and small, scaly and soft.
Page 6

Chimpanzee Mothers

The messages a mother gives her daughter about the world have a profound influence upon a growing child. Members have a special opportunity to join Jane Goodall in a lecture/slide show about chimpanzee mother-daughter relationships.
Page 3

Along the Silk Road

This issue features lectures, films, a special Members' storytelling program and a historical article about the important trade routes between the East and West which are the subject of the Museum's *Silk Roads: China Ships* exhibition.
Pages 4, 5, 6 and 7

Members' Memo

Rewarding Awards

A few months ago I discussed the many different organizations and individuals who support the Museum. Few people realize, however, that besides soliciting for funds, we also distribute funds through our Grants and Fellowships Programs. These programs provide financial support to post doctoral investigators and established scientists and scholars.

These programs are supported by ten major funds. Some of these are restricted to specific fields, while others are broader in scope.

The first of these funds, the Frank M. Chapman Memorial Fund, was established in 1945 to honor the Museum's famed ornithologist. It specifically aids ornithological research. The Boeschenstein fund, on the other hand, supports grants and fellowships not only in natural history areas but also in the field of museum education. The Theodore Roosevelt Memorial Fund, endowed by the Theodore Roosevelt Association, was established to help perpetuate the former President's lifelong concern with wildlife conservation. It encourages the study of the fauna of the Americas.

The Museum's Grants Program provides modest awards

to cover research expenses and is intended primarily to assist pre doctoral candidates and post doctoral researchers. Last year almost \$200,000 were distributed to 200 individuals.

Although a few of the grants in this area go to people who want to work with the Museum's collections, the vast majority help students to pursue work in the field. During the past year, these grants were given to such people as James C. Bednarz, who was awarded a Chapman grant to help in his ecological study of the cooperatively breeding Hamis Hawk; Terrence P. Hughes, who was awarded a Lerner-Gray grant to aid him in his study of the population dynamics of coral reefs; and Anne M. Helsley, who was awarded a Richard Lounsbery grant to complete a study of Tambo Real, an Incan administrative center in Northern Peru.

The Fellowship Programs provide substantial stipends and salaries to qualified applicants. Recipients must be in residence at the Museum or one of its field stations. These fellowships are not only beneficial to the scholar but to the Museum. They enable research to be done on aspects of our collections not

being studied by the current staff. This year's fellows include Brian Shea, a Lounsbery post doctoral fellow who is analyzing the evolution of the crania of apes and humans and comparing the orangutan with the great apes of Africa. The James Walter Carter Fellow is Lawrence J. Flynn, who is studying the evolution of early mammals from eastern Asia and doing extensive work with our collection of fossils from China.

The Grants and Fellowships Programs are important means of identifying outstanding scientists of the future. A grant often enables the recipient to attract more funds from other sources. If you would like more information about these programs, please write to:

Office of Grants and Fellowships, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024

This office will be glad to send you a brochure and answer any questions you might have.

Henry H. Schulson

ROTUNDA

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The Museum receives substantial support from a number of major sources. We are particularly grateful to the City of New York which owns the Museum buildings and provides funds for their operation and maintenance, and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 300 corporations, 60 private foundations, 460,000 members, and numerous individual contributors.

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A Kaleidoscope of Dance

Sunday, April 8, 1:30 and 3:30 p.m.
Kaufmann Theater
\$2.00 and open only to Members

A celebration of human culture and natural history, inspired by the Museum's collections, is soon in store for children ages twelve and under and their families. The Kaleidoscope Dancers have created a special program that will explore concepts of evolution and portray the origin of shooting stars.

Children will pretend they are turtles as the dancers show them how a curious turtle sticks its head out of its shell to find out what is happening in the outside world. The dancers will even explore the way a chick hatches from its egg!

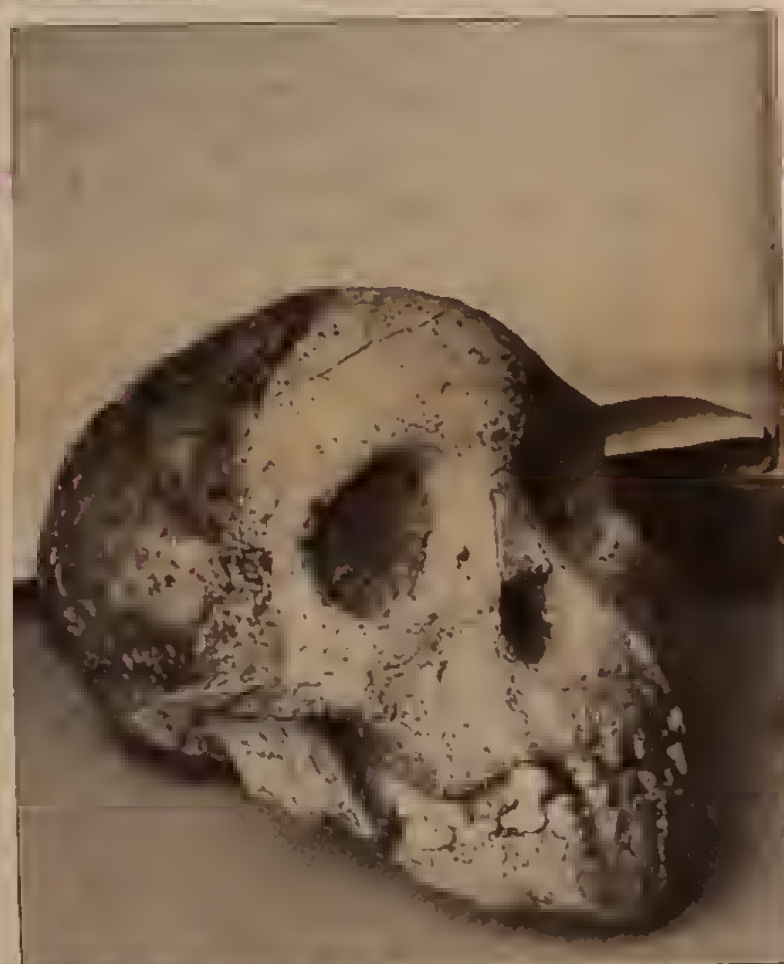
Through audience participation and imaginative choreography, the Kaleidoscope Dancers have introduced children throughout the metropolitan area to dance as an art form. Their colorful, fast-paced programs have been performed in schools, hospitals, libraries and parks. They are affiliated with New York University's School of Education, Health, Nursing and Arts Professions.

For ticket reservations, please call (212) 873-1327.



Kaleidoscope Dancer Kenneth Hilliard

David Lindner



The "Taung child" of the species *Australopithecus africanus* is believed to be approximately two million years old.

Members' Opening for Ancestors.

Wednesday, April 11 or Thursday, April 12.

Please indicate a first and second choice of times.

April 11: 5:30 p.m. 6:30 p.m. 7:30 p.m.

April 12: 5:30 p.m. 6:30 p.m. 7:30 p.m.

Number of people: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Ancestors, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Click the Castanets

Tuesday, May 22, 7:30 p.m., Main Auditorium
\$3.50 and open only to Members



These instruments have an ancient history

Back arched, and arms circling, the Spanish dancer clicks her castanets as her heels stamp upon the ground. It is a fierce, seductive dance.

Over a thousand years earlier, before the existence of Spain, a religious Egyptian woman played a very similar instrument as she worshipped Hathor, the cow-headed goddess. Her castanet was as precious to her as the rosary is to a devout Catholic woman today.

Even further back in time the castanet was not yet a musical instrument, but a curved wooden boomerang used to snag birds. The clapper — the earliest Egyptian instrument known — was shaped like a boomerang, and the same hieroglyph was used to represent both the hunting tool and the musical instrument.

Matteo and Carola Goya of the Foundation for Ethnic Dance will treat Members to a special program dedicated to the castanet, that tiny percussive instrument which carries within it thousands of years of history, worship, and performance.

The dancers will discuss and demonstrate different ways of using castanets. Their company will perform musical arrangements of such diverse countries and cultures as Africa, East India, France, Denmark, and Spain. Castanets from all over the

world will be played, ranging in size and shape from a "thumbnail" sized castanet from Northern Aragon, to a large, sonorous one from Ibiza that measures ten inches in diameter and was traditionally used in outdoor religious processions.

The highlight of the program will be a "first" in musical history, as the company forms a small chamber orchestra of tuned castanets, each set carved from the

wood of a different country.

Carola Goya has toured the world several times, both dancing and introducing the art of solo castanet playing. Matteo has also performed world wide. He is the founder and artistic director of the Foundation for Ethnic Dance, Inc., an institution whose major purpose is to support the research and performance of indigenous dance forms.

To order tickets, please use the adjacent coupon.

Click the Castanets. Tuesday, May 22. This program is open only to Members and their guests. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$3.50. Associate Members are entitled to one. All other tickets are \$6.50 each.

Number of Members' tickets _____ X \$3.50 \$
Number of additional tickets _____ X \$6.50 \$
Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

Daytime Phone: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Click the Castanets, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Mothers and Daughters

Monday, May 14, 7:30 p.m., Main Auditorium
\$6 and open only to Members



Derek Bruce

It is a rugged, verdant world of mountains and valleys. Brilliant flowers gleam through dark foliage. Beautiful birds sing from high branches and pluck fish from cool streams. In the rainy season the smell of earth is everywhere. It is the home of *Pan troglodytes schweinfurthi* — the Eastern chimpanzee.

For over two decades Dr. Jane Goodall has studied the chimpanzees of Tanzania's Gombe Stream Reserve. She has heard them call to one another, and has watched them play, fight, make tools and even hunt. She has learned that of all bonds

between the members of a chimpanzee community, the strongest and most lasting is that between mother and child.

The chimpanzee family unit consists of the mother and her offspring. Since a female may mate with many males during her "pink" period, the father of a particular chimp is never known. Yet a mother chimpanzee's recognition of and relationships with her children may last as long as she lives.

On the day after Mother's Day, Dr. Goodall will speak of the chimp family with a special emphasis on the mother-daughter relationship. She will

discuss chimpanzee child rearing, role modeling, aggression, learning, jealousy, and social relations, and how some of the knowledge gained from the study of chimps may be applicable to ourselves.

Dr. Goodall will tell us, for instance of Pom, Passion's daughter, and Fifi, the daughter of Flo. Flo was a dominant female. Her relationship with Fifi was marked by playfulness, affection, and great tolerance for her daughter's youthful energy and curiosity. Passion was also a dominant female, but she was something of a loner who was often loath to play with and dote upon her daughter.

Two very different mothers produced two very different daughters; from an early age it was clear that Fifi was more socially and sexually comfortable with others chimps than was Pom. Like mother like daughter? Often yes, but sometimes no.

Due to behavioral and biological similarities, the chimpanzee is thought by most anthropologists to be our closest living relative. That notwithstanding, there are

major differences between chimpanzee and human families which Dr. Goodall will also address. The lecture will broaden our understanding of human parent-child relationships, as well as open the door to a greater appreciation of a species which is so foreign, yet so hauntingly familiar.

We expect a tremendous demand for tickets to this

program. In order to give all Members an equal opportunity to receive tickets, all ticket orders postmarked by April 10 will be treated on an equal basis, and we will use a random lottery to fulfill ticket orders.

To register for *Mothers and Daughters*, please use the adjacent coupon.

Mothers and Daughters. Monday, May 14, 7:30 p.m. This program is open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$6. Associates are entitled to one. All other tickets are \$9.00.

Number of Members' tickets _____ X \$6.00 \$
Number of additional tickets _____ X \$9.00 \$
Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Mothers and Daughters, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

Bicycles and Dragons: Two Views of China

February 9
through July 15
Akeley Gallery

Contemporary China is a country in the midst of a sweeping transformation, an ancient nation trying to leap headlong into the twentieth century. The visitor to China today witnesses the modern scenes of an industrialized country as well as vibrant vestiges and life patterns of the past. City buses zoom past piles of cabbage lying on the sidewalk. Oxen are driven along country roads that are dotted with modern billboards.

The similarities and differences between traditional and modern China are the themes of a special exhibition entitled *Bicycles and Dragons: Two Views of China*. The exhibition juxtaposes forty contemporary photographs of Chinese life with forty historic photographs drawn from the Museum's collections.

The recent photos were taken by three staff members of the Museum of the American Indian, who were part of a group which installed an exhibition of Native American art in Peking and Shanghai. Many of the historic archival photos on display were taken by American Museum of Natural History staff members who accompanied Museum expeditions between 1916 and 1930. During this time, the Museum sponsored several major expeditions to China for archeological, paleontological and zoological research.

Bicycles and Dragons is in the Akeley Gallery, on the second floor between the Hall of African Mammals and the Man in Africa exhibition.



The paper white lantern in this photograph represents the white rabbit, a popular symbol in China. 1982, near Shanghai.



Classroom about 1900. At this time education was for the privileged. These boys and their teachers are dressed in gentlemanly attire.

Silk Roads Lectures and Films

Free and open to all Museum visitors

The current exhibition in Gallery 3, *Silk Roads-China Ships*, presents a panorama of two thousand years of commerce between Europe and the Orient. In conjunction with the exhibit, the Department of Education is offering four afternoon lectures and an evening film program which will be free to Museum visitors.

Lectures

2:00 p.m. in the Kaufmann Theater on the dates noted.

Tuesday, April 17. *Barbarian Emissaries Along the Silk Route: Marco Polo and His*

Precursors at the Court of Khublai Khan. By Dr. Momis Rossabi, Professor of History and Director of Asian Studies at Case Western Reserve University, Cleveland.

Thursday, April 19. *The Voyage of the Empress of China in 1794: The Initiation of U.S.-China Trade*. By Sue Ellen Gronewald, Lecturer on Asia for the Education Department.

Tuesday, April 24. *Ladakh Then and Now*. By Helena Norberg-Hodge, resident of Ladakh since 1975 and director of the Ladakh Project.

Thursday, April 26. *Morden-Graves North Asiatic Expedition (1929-30)*, a silent film presentation. From the Special Film Collection in the Museum Library. Introduction and narration by Susan Gilbert, a recent graduate of Barnard College and intern at the American Museum.

Films From Along the Silk Road

Wednesday, April 18, 7:00 p.m. in the Main Auditorium.

American Museum of Natural History Central Asiatic Expedition: Peking. Depicted

in this film are the buildings, gates, street scenes and ceremonies encountered by Museum paleontologist Roy Chapman Andrews in Peking during his expedition to China between the years of 1921 and 1930. Nina Root, Chairwoman of the Museum library, will introduce this archival film.

Silk Bandit. This film features the work and discoveries of a Royal Ontario Museum archaeological expedition to a mountain stronghold near the Silk Road in the remote highlands of western Iran.

Mountain Crossroads and

the Diamond Path. The passage of Buddhism along the Silk Route from India across the Himalayas into central Asia is traced.

Suzhou. The story of Suzhou, for centuries a center of Chinese culture and aesthetics, is told.

Seating for both programs is on a first-come first-served basis. Members are advised to arrive early to obtain seating. For further information about the lectures or films, please call (212) 873-1300, ext. 559.

Strands that Connected Empires

When you walk out of the Museum at 77th Street and take a stroll down Columbus Avenue, chances are you will see numerous people clad in designer jeans and alligator shirts, or carrying handbags with someone's initials on them. Some people will also be wearing winter coats of mink, ermine, lynx, and other valuable furs.

The desire for some material indication of one's status is not a new phenomenon. What has changed however, is that owning status-conferring items today is not purely the prerogative of the noble or extremely rich.

Exotic Extremes

Beginning in the Middle Ages, European nobility eagerly collected curiosities of foreign manufacture, and exotic natural specimens such as coconut shells. These oddities were often mounted ostentatiously in gold or silver settings inlaid with precious stones, and displayed as collections in curio cabinets.

People with wealth and power would go to great extremes to obtain objects of status. Augustus the Strong (1670-1733), a King of Poland and elector of Saxony, reportedly exchanged an entire regiment of soldiers with Frederick I of Prussia for a set of Chinese porcelain vases. And the Romans' demand for exotic Eastern goods in the first and second centuries was so strong that it caused a severe deficit in the economy. The emperor Tiberius noted that gold was being used to pay for "articles that flatter the vanity . . . jewels and those little objects which drain away the riches of the empire."

The Original Meaning of Trade

The great demand for exotica fostered the development of a network of trading centers stretching from the Far East to the Mediterranean, where entrepreneurs converged to exchange profitable luxury goods. As early as the first century B.C., adventurous merchants formed camel caravans which slowly wound along the mountain passes and through the vast deserts of overland routes known as the Silk Roads.

The successful entrepreneur stood to make a hundred or sometimes a thousand-fold profit on invested capital by going to far-flung marketplaces to seek out items which catered to the tastes of wealthy buyers. But the life of a trader was by no means easy.

Today we take certain business practices for granted: telephone conversations, funds transferred from one computer to another, overseas deliveries by airplane. The word trade has become far removed from the Old Saxon word *trada*, meaning footstep.

Trade caravans of past centuries were constantly subject to attack by bandits and the vagaries of unpredictable weather. Trade goods were costly to transport and could be carried only in small quantities. Until the last century, an international trader, while on the road, risked permanent loss of contact with his venture.

With all these risks, the promise of huge financial rewards had to be quite high. Merchants found that the best profits could be made by such goods as spices, precious stones, silks, porcelains, and even exotic animals like apes or peacocks, which were coveted by the well-to-do at both ends of the trade routes.

The Secrets of Silk

While silk was by no means the only item to provide a strong impetus for international trade, it was certainly one of the best sellers. For centuries, the Chinese were able to keep the methods of its production secret from the rest of the world, cornering the

Continued on page 6



Persian manuscript with ship illustration from the second half of the seventeenth century.



This woodcut, printed in colors on paper, depicts the Dan Yang herdsman during the Han dynasty, and Zhi Nu, the weaver maiden. Note the Greco-Roman influence — especially in the weaver maiden's form — evident in this otherwise Japanese scene.

market in this luxury good. Silk manufacture, which had existed from antiquity in China, became of such great economic importance that by imperial decree, disclosure of the methods of production meant death by torture for the informer. How, then, was the information disseminated?

According to an old legend, in about 140 B.C. a Chinese princess was sent to Khotan (near the border of India) to be married. Unable to bear the thought of being without her beautiful native silks at the new court, and knowing that no one would dare search a member of the royal family, she hid silk-worm eggs and mulberry seeds in the lining of her headdress to smuggle them to her new home.

We now know that Persian traders brought the secret of silk production from China to Byzantium during the sixth century A.D., and that it subsequently spread slowly throughout the East and West.

When raw silk first appeared in Rome at the beginning of the Christian era, it was literally worth its weight in gold. In about 550 A.D. two Persian monks persuaded Emperor Justinian to pay them to smuggle silkworms to Constantinople, hidden in the hollows of their bamboo canes. From these few specimens, varieties were bred which hastened the development of European sericulture.

The Far East, however, continued to supply the West with large quantities of silk even after manufacturing methods had spread. The Chinese willingly catered to the foreign market, designing fabrics with Arabic motifs for the Islamic market in the 13th and 14th centuries. When European traders began to arrive more frequently in China in the early 16th century, silk manufacture was adapted to meet Western market demands. Motifs such as family coats of arms were integrated into woven silks, and beginning in the 17th century, patterns were regularly supplied by Western merchants for made-to-order Chinese textiles in the orientalized



Glazed earthenware horse from China, Tang Dynasty

Courtesy of the Royal Ontario Museum

style favored by wealthy Europeans.

The demand for designs which evoked the mystery and opulence of an often illusory vision of the Far East led European artisans and craftsmen to produce textiles, porcelains, and furniture decorated in the chinoiserie manner. Oriental motifs — stylized landscapes with flowering trees, exotic birds, fanciful animals, and pagodas — were combined with the prevailing baroque, and later rococo, styles of the West. In the 18th century, the well-known English "blue willow" pattern was one of the most popular chinoiserie designs in Europe. It is still being produced today.

In the 17th and 18th centuries, acquisition of these luxury items became possible

for many more people. The West manufactured porcelains and silks which approached the quality of those produced in the Orient, but were available at lower prices. The volume of international trade increased due to more modern ships and navigational aids. The great European voyages of discovery in the 15th to 18th centuries, launched in hopes of gaining the advantage in international trade by finding new routes to the East, opened up new markets and sources of supply. New World exploration put a large quantity of exploitable natural resources in the hands of European countries, which used the newly created wealth to pay for the luxury goods of the Far East. New transportation methods changed the nature of international trade as it became profitable to move large quantities of raw materials to be used in newly industrialized economies. In addition, world population and the number of people able to afford the available products increased.

At last, spices, teas, textiles and china became readily available to a wider range of consumer, and many goods ceased to be luxury items. The age of discovery had rendered the ancient overland routes along the Silk Roads obsolete, with respect to trade with European markets.

The role of international commerce through the last two millennia as an agent for the dissemination of manners, customs, art and technology, politics and religion, was crucial to the development of our interdependent modern economic systems. Visitors to the Museum have an opportunity to learn more about this fascinating subject through the current exhibition, *Silk Roads—China Ships*, which provides a panorama of the trade routes and products of two thousand years of commerce between the East and West. The exhibition, organized by the Royal Ontario Museum with a grant from the American Express Foundation, will remain on view in Gallery 3 through May 12.

— Barbara Sawicz

Across the Great Salt Desert

Sunday, May 6, 11:30, 1:30 and 3:30 p.m.

Kaufmann Theater

Free and open only to Members

Long camel caravans once traversed this Iranian desert where there is sometimes no rain in the course of an entire year. Now the only camels to graze upon scattered clumps of vegetation are wild ones. The isolated walls which once offered shelter to merchants

and their beasts of burden contain the nests of the noble kestrel. Where a robbers' fort once stood, a lone stream of salt water trickles, dampening the parched earth. Millions of years ago water was no scarcity in this region; what is today 10,000 square miles of

desert lay beneath an inland sea.

The Great Salt Desert, filmed and directed by Dr. John Cooke, introduces Members to the Dasht-e-Kavir Desert, an arid, salty region southeast of Tehran. To the uninitiated, it appears a vast

wasteland. To the horned viper sidewinding across the sand, the furry little jerboa nibbling on dry seeds, and the female wasp en route to her distant nest with a fat, juicy caterpillar in tow, it is home.

Dr. Cooke is a zoologist, writer and filmmaker who has

spent many years studying desert ecosystems. He will introduce the 30-minute film and answer questions from the audience.

To register for this program, please complete the adjacent coupon.

Across the Great Salt Desert. Sunday, May 6. This program is free and open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets may be purchased at \$4.00 each

Number of free tickets _____

Number of tickets at \$4.00 _____

Please indicate a first and second choice of times:

____ 11:30 a.m. ____ 1:30 p.m. ____ 3:30 p.m.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *Great Salt Desert*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.



The manitar lizard, at home in the Dasht-e-Kavir Desert

John Cooke

Lore of Yore

Monday, April 23, 7:30 p.m.

Kaufmann Theater

\$3.00 for Members, \$6.00 for non-members

Among the great treasures carried over the Silk Route were stories and legends. Epic fairy tales and lore were traded from China and Mongolia to Turkey and Timbuktu. They told of exotic cultures and enchanting heroes.

Storyteller Laura Simms will present a sampling of these stories in a program entitled *Tales of the Silk Route*. Her repertoire includes the Mongolian myth of The Seven

Sacred Horses, a hilarious Siberian fairy tale about Boghach Kahn's mother, and a Persian tale of the adventures of a Sasanian prince and seven princesses.

Musician Steven Gom will provide musical accompaniment on the Chinese and Turkish flutes, the Sarangi (a North Indian fiddle) and other traditional Asian instruments.

Laura Simms is one of America's foremost performers and students of world folklore.

Steven Gom is a master of Indian, African, and Asian flute and percussion instruments. The two artists have joined forces to create a new theater of storytelling. Both have performed at the Museum on numerous occasions, most recently for our popular *Spirit Stories from Around the World* program.

Please use the adjacent coupon to register for tickets. For additional information call (212) 873-1327.

Tales of the Silk Route. Monday, April 23. Participating. Donor and Contributing Members are entitled to four tickets at the Members' price of \$3.00. Associate Members are entitled to one. All other tickets are \$6.00.

Number of Members' tickets _____ X \$3.00 \$ _____
Number of non-members' tickets _____ X \$6.00 \$ _____
Total amount enclosed. _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Tales of the Silk Route*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Spring Field Classes in Bird Identification

Beginning April 10. \$4 per walk. No pre-registration or reservations required.



What are these people looking at? Find out by joining our spring field classes in bird identification. For additional fascinating field trips, read on.

Central Park is one of the best spots to watch birds during the spring migration. At this time of the year, large numbers of birds pass over the metropolitan area en route to northern nesting areas. Many have flown hundreds of miles, and are exhausted. They seek shelter, rest, water and food.

To a weary bird, flying

north over Manhattan, Central Park must look like a green oasis amidst a desert of asphalt and concrete. For this reason, it's not unusual to see between fifty and sixty species of birds during a morning walk through the Park in early May!

This spring, the Department of Education offers its annual series of bird walks in Central

Park, on Tuesday and Thursday mornings. Always on the lookout for rare or unusual sightings for our veteran birders, we also point out the basics for those who are stepping into the world of birds for the first time.

Participants will learn the various skills of bird identification. Emphasis will be placed on acquainting participants

with the use of field marks, habitat, behavior, and song as important aids in identifying birds.

Tuesday morning walks start at 7:00 a.m. and finish at 9:00 a.m. They begin on April 10th and continue for seven consecutive Tuesdays until May 22.

Thursday morning walks start at 9:00 a.m. and finish at

11:00 a.m. They begin on April 12 and continue for seven consecutive Thursdays until May 24.

Binoculars are a must! To join a walk, simply meet at the northeast corner of Central Park West and 77th Street. For additional information please call the Department of Education at (212) 873-7507.

Spring in the Field

There are still a limited number of spaces available in two of the Education Department's Spring Field Trips.

Saturday Field Walks in Botany. Six Saturdays beginning April 28. Limited to 30 adults.

During the spring blooming

period, you can learn about wild plants, particularly the flowering forms, in this series of walks in areas of botanical significance in New York City. Identification and ecology of the plants will be discussed informally.

Helmut Schiller, Lecturer in

Botany at the Museum, will lead the walks, which begin at 10:00 a.m.

Weekend in Geology. May 19 and 20. Limited to 36 adults.

Survey geology between the Appalachian Plateau in northeastern Pennsylvania

and the Coastal Plain of northern New Jersey in this two-day bus trip. Along the Coastal Plain you will visit Sandy Hook and the Highlands of the Navesink. Collecting stops are made en route. You will be accommodated overnight near

Parsippany.

Dr. George Harlow, Associate Curator, Department of Mineral Sciences, leads this field study tour.

For more details and an application, please call (212) 873-7507.

Latin American Month

Leonhardt People Center and the Kaufmann Theater, Saturdays and Sundays, 1:00 p.m. to 4:30 p.m.

April marks the Museum's second annual celebration of the peoples, music, and arts of Latin America. This year's theme is *Latin America: Traditions, Crafts, and Folklore*. A variety of programs featuring the rich cultural heritage of the region will be available each weekend in April.

All presentations, unless otherwise noted, run continuously in the Leonhardt People Center from 1:00 to 4:30 p.m. on Saturdays and Sundays.

Free tickets for the performances in the Kaufmann Theater will be distributed on a first-come, first-served basis on the day of each performance. They can be obtained at the first-floor information desk beginning at 1:00 p.m.

April 7 and 8

Both afternoons this weekend will feature a musical program entitled *Art Songs of Latin American Composers*,

performed by members of the critically acclaimed group *Música Hispana*. Under the direction of Uruguayan pianist Pablo Zinger, vocal and instrumental soloists of international reputation will perform music of Mexico, Argentina, Chile, Ecuador and Brazil.

A lecture on Pre-Columbian art by Rafael Colón Morales, and a presentation on South American wind instruments by performer Hilarion Portugal Soto are also scheduled.

April 14 and 15

Saturday is Pan American Day, a celebration of the common ties and interests binding North and South America. In recognition of this special day, a piano concert entitled *Tribute to the Americas*, featuring Marco Rizo, will highlight the weekend. Mr. Rizo specializes in the music of his native Cuba and Latin America. He

has composed the scores for numerous movies and for eight years was the pianist, arranger, and conductor for the "I Love Lucy" television series. There will be one performance each day in the Kaufmann Theater at 3:30 p.m.

On Saturday and Sunday, Repertorio Folklórico Mexicano will perform regional dances from four areas of Mexico — Norte, Jalisco, Veracruz, and Chiapas. A guitar will accompany Ibo Calderón as he presents South American folk tales, and a lecture by Susan Tapia and Margarita Wurfl will cover the indigenous influences in Ecuadorian art.

April 21 and 22

Panamanian dances will be presented by the group Ballet Folklórico de Panamá, and Elayne Zorn will give a traditional weaving demonstration

of Andean textiles. The renowned harpist, Atahualpa Poalasin, will demonstrate Guanari Indian harp-making.

April 28 and 29

Alejandra Dondines and Luis Leal will perform Argentinian and Bolivian folk dances, and Elayne Zorn and Juan Cutipa Colque will present traditional and creole music of the Andean highlands. A lecture entitled *Wari Symbolism in Contemporary Tapestry* will be given by Gregorio Sulca and Margarita Wurfl. Mr. Sulca is a world-class master weaver from Peru. His tapestries combine geometric and animal motifs from the ancient Wari culture with modern elements. Throughout Latin American Month, an exhibition of Mr. Sulca's work entitled *Pre-Inca Myths and Legends* will remain on view in the People Center.

On Saturday the group Tahuantinsuyo, will present *Music of the Andes*.

Tahuantinsuyo performs music from the regions which once comprised the Incan empire, the *antiplano*, or highlands, of South America. This program will take place in the Kaufmann Theater at 3:30 p.m.

On Sunday, the group Achachila, under the direction of Hilarion Portugal Soto, will treat Museum visitors to traditional, creole, and contemporary Andean music. This concert will be in the Kaufmann Theater at 3:30 p.m.

Latin American Month is sponsored by the Caribbean Program of the Department of Education. All programs are free to Museum visitors, but seating is on a first-come, first-served basis. For further information, please call (212) 873-1300, ext. 514.



Hilarion Portugal Soto constructs and plays the zampoña, known in English as the panpipe. This particular zampoña is played by the Aymara Indians of Bolivia.

Young Dancers

Wednesday, April 25, 7:30 p.m.
Main Auditorium. Free.

The movie and television series *Fame* have made New York's High School of the Performing Arts well-known around the world. Among the qualities of this specialized high school that are accurately portrayed in the series are the enormous vitality of its students, and the opportunities it offers talented youngsters from all ethnic backgrounds.

In a concert presented by the seniors of this unique school, dance students will

demonstrate the wide variety of styles they work to perfect. The concert will include classical ballet, and modern, ethnic, and jazz dance.

This performance is presented as part of National Dance Week. Seating is on a first-come, first served basis, and Members are advised to arrive early to avoid disappointment. For further information, please call the Department of Education at (212) 873-1300, ext. 559.

The American Museum of Natural History Presents The 54th Annual James Arthur Lecture on the

Evolution of the Human Brain

Tuesday, May 1, 6:00 p.m., Kaufmann Theater
Free and open to all Museum visitors

The human being is an extremely symbolic animal. In our religions, our artwork and our daily language we easily handle long chains of symbols without a second thought. How many of us stop to think that "dog" is not an animal, but a word?

The fact that we can sculpt, draw cartoons, write poetry, talk up a storm and tell stories about our friends and neighbors is no accident. Abilities such as these have been integral to our survival for many thousands of years.

Analysis of symbolic materi-

als of modern *Homo sapiens* (beginning about 32,000 years ago) and of our ancestors as far back as 300,000 years ago, suggest that the ability to handle an "artificial" or cultural world has been as important in our development as the ability to reckon with the physical world.

Dr. Alexander Marshack, the speaker, is a Research Associate in Paleolithic Archaeology at the Peabody Museum of Archaeology and Ethnology at Harvard University. Working with ancient artifacts and cave art which early

humans left behind, Dr. Marshack has developed models for the study of these objects, and theories concerning their importance in human development.

In his lecture, entitled *Hierarchical Evolution of the Human Capacity: The Paleolithic Evidence*, Dr. Marshack will use long chains of symbols (both words and slides) to explore the human legacy.

Since seating is on a first-come, first-served basis, Members are advised to arrive early for the program.

Plenty of Space for Members

Thursday, April 26, 6:15 and 7:30 p.m. \$2.50 for adults, \$1.50 for children and open only to Members



Brian Sullivan (Production Designer) and Larry Brown (Producer) prepare space shuttle and space station models for Star Quest.

What will life be like for a resident of a large space colony? How will 21st century spacecraft descend into the hurricanes of Jupiter?

In a special Members' screening of *Star Quest*, the Planetarium's newest sky show, you will be treated to a panorama of the history of astronomy, from the ideas of ancient stargazers to aspects of modern space technology. You will then be whisked into the future, to lunar bases, permanent space colonies and flights to the stars. Leonard Nimoy's recorded voice narrates the program.

Prior to the sky show, you are invited to sip refreshments at a cash bar in the Guggenheim Space Theater, surrounded by galaxies, nebulae and other worlds. In addition, several of the Hayden Planetarium's production staff will be on hand with examples of artwork, models, and special effects devices which are

used to create the Planetarium's sky shows.
To register for this program,

please use the adjacent coupon. For further information, call (212) 873-1327

Members' Reception for Star Quest. Thursday, April 26. This program is open only to Members and their guests. Please indicate a first and second choice of times.

6:15 p.m. 7:30 p.m.

Number of adults' tickets _____ X \$2.50 \$ _____
Number of children's tickets _____ X \$1.50 \$ _____
Total amount enclosed: \$ _____

Name: _____

Address: _____

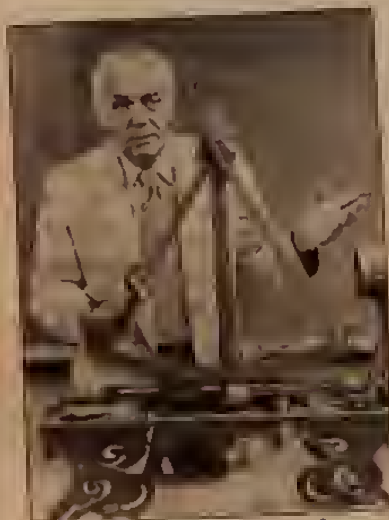
City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the Museum of Natural History and mail with a self-addressed, stamped envelope to: *Star Quest*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Courses for Stargazers



Dr. Fred Hess teaches Navigation in Coastal Waters.

Astronomy

Introduction to Astronomy. Eight Tuesday evenings beginning April 3. 6:30-8:40 p.m. \$70 (\$63 for Members). Dr. Bartol.

Stars, Constellations and Legends. Five Tuesday evenings beginning April 3.

6:30-8:10 p.m. \$70 (\$63 for Members). Mr. Beyer.

How to Use a Telescope. Eight Monday evenings beginning April 2. 6:30-8:40 p.m. \$70 (\$63 for Members). Mr. Storch.

Astrophotography. Seven Thursday evenings beginning

April 5. 6:30-8:40 p.m. \$65 (\$58.50 for Members). Mr. Gordon.

Introduction to Orbit Calculations. Eight Tuesday evenings beginning April 3. 6:30-8:40 p.m. \$95 (\$85 for Members). Dr. Franklin. This is an advanced course for the mathematically inclined. Access to a scientific calculator may be helpful.

Aviation

Ground School for Private and Commercial Pilots. Fourteen sessions on Mondays and Wednesdays beginning April 2. 6:30-8:40 p.m. \$175 (\$157 for Members). Mr. Cone.

Navigation

Navigation in Coastal Waters. Eight Tuesday evenings beginning April 3. 6:30-9:00 p.m. \$95 (\$85 for Members). Dr. Hess.

Introduction to Celestial Navigation. Eight Monday evenings beginning April 2. 6:30-9:00 p.m. \$95 (\$85 for Members). Prof. Parnham. Students must have completed *Navigation in Coastal Waters* or have equivalent piloting experience.

Advanced Celestial Navigation. Eight Wednesday evenings beginning April 4. 6:30-9:00 p.m. \$95 (\$85 for Members). Prof. Parnham. Students must have completed *Introduction to Celestial Navigation* or have equivalent experience with permission of the instructor.

Science Fiction

Science and Science Fiction. Eight Wednesday evenings beginning April 4. 6:30-8:40 p.m. \$70 (\$63 for Members). Dr. Allison. Previous enrollment in *Introduction to Astronomy* will be helpful. A few of the above courses have required textbooks. For further information please call (212) 873-1300, ext. 206.

Happenings at the Hayden



During April, a three-minute mini-feature about the solar eclipse to occur in May will accompany the Planetarium's public Sky Show performances, Monday through Friday at 1:30 and 3:30 p.m. For additional information, please call (212) 873-8828.

Sky Shows

Cosmic Mysteries. Through April 2. Explore space-related mysteries, many of which remain unsolved.

Star Quest. April 5 through September 10. Come take a look at past, present and future conquests of space from the earliest rockets to tomorrow's planetary outposts and flights to the stars. For a fuller description of this new sky show, and a special Members' Reception, see the above article.

Sky Show Times

Weekdays 1:30 and 3:30 p.m.

Saturday. 11:00 a.m. and hourly from 1:00 to 5:00 p.m.

Sunday: hourly from 1:00 to 5:00 p.m.

Holiday Schedule

From April 16 through April 20 and again on April 23 and 24, sky shows are hourly from 12:00 p.m. to 3:00 p.m.

Admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member

prices please call (212) 873-8828.

Admission to the Planetarium includes two floors of astronomical exhibitions **Laser Zeppelin.**

New laser visuals combine with the music of Led Zeppelin to create a unique and dazzling experience of sight and sound.

Friday and Saturday at 7:30, 9:00 and 10:30 p.m.

Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased in advance at Ticketron outlets, or at the Planetarium box office on the

night of the show. For more information about the laser show, call (212) 724-8700.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

When in doubt, call before coming. All prices and show times are subject to change without notice.

I would like to register for the following Planetarium course(s): _____

Course: _____ Price: _____

Class beginning: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please bring this registration form and a check payable to the American Museum-Hayden Planetarium with you to the first or second class. Registration will be accepted until April 12. In the event that a student withdraws from a course, a fee of \$10.00 and charges for sessions attended will be made on all refunds of tuition. No refunds can be made after the second session. Courses may be cancelled without prior notice, with full refund of tuition.

The Volunteer Office Wants You

Six special origami sessions for volunteers begin Wednesday, May 2.

Museum volunteers now have the opportunity to create strawberries, pandas, and many other plants and animals in a special free *Introduction to Origami* course to be offered from 6:30 to 8:30 p.m. on six consecutive Wednesday evenings. In exchange for the instruction, volunteers are expected to give at least an equal amount of time to Museum origami projects.

Origami, the international art of paperfolding, annually decorates the Museum's splendid holiday tree, which won the admiration of thousands of Museum visitors this past year. In over eleven

years, more than 100,000 hours have been given by volunteers to complete it.

Volunteer origami specialists Alice Gray and Michael Shall will teach this class, geared toward new folders. All materials are supplied. By the end of the class, you may even be able to make the beautiful peacock shown below!

The Volunteer Office can also alert you to other volunteer opportunities available throughout the Museum, such as working in our many busy offices, manning our information desks, and writing articles. For information and registration, please call (212) 873-1300, ext. 538.



• Martin Jackson

American Museum of Natural History

Discover the world with distinguished Museum lecturers on cruises and land tours in 1984. Our 30th year conducting superb travel vacations. Congenial companions. Entertaining and educational trips. Meticulous arrangements. Call (212) 873-1440 or write for information.

Please send information on the 1984 tours checked:

- ☐ Anthropology Tour to Morocco April 13-28
- ☐ Archeology Tour to Tibet and China June 15-July 13
- ☐ Alaska Wildlife Adventure June 29-July 17
- ☐ West European Waterways June 17-July 4
- ☐ Britain by Sea June 27-July 15
- ☐ Scandinavian Saga July 10-26
- ☐ Galapagos Islands Cruise August 6-17
- ☐ Papua New Guinea Expedition Sept. 8-Oct. 1
- ☐ East African Safari October 4-28

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Detach this form and send it to Discovery Tours, American Museum of Natural History, Central Park West at 79th St., New York, NY 10024. (212) 873-1440

Museum Notes



Sulfur from Cionciono, Sicily, from the Benient collection, on exhibit in the Hall of Mineral Sciences.

Special Exhibitions

Ancestors: Four Million Years of Humanity: April 13 through September 6. One of the most significant paleontological exhibitions ever undertaken. Gallery 1. (See page 1.)

Bicycles and Dragons: Two Views of China. Through July 15. A photographic exhibition in the Akeley Gallery. (See page 4.)

Silk Roads-China Ships. Through May 12. An exhibition of more than 400 artifacts illustrating 2,000 years of commerce in goods, technology, art and ideas which traveled the major trade routes between Europe and the Orient. Gallery 3. (See pages 3, 4, 5 and 7.)

Looking Ahead

In addition to programs listed in this issue, be on the lookout for the following programs in May:

Native Americans will be featured in the People Center.

The Department of Education's programs, to be featured in your next issue of *Rotunda*, include:

Gospel Music and the Black Consciousness (May 11) and **The Lafayette Theater Revisited** (May 19). For information, please call (212) 873-1300, ext. 514.

Versions of the Traditional (May 2, 9 and 16). Poetry, music and myths from Africa, Mesoamerica and North America. For additional information, please call (212) 873-1300, ext. 559.)

Women in Latin American Culture (May 4, 5, and 12) and **The Caribbean Film Festival** (May 16, 23 and 30). For information please call (212) 873-1300, ext. 514.

Programs and Tours

Museum Highlights
Tours offer fascinating

glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor Information Desk. If you wish to join a free tour, please ask at the information desks for specific tour times.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

Group package tours for *Silk Roads/China Ships* are offered by the Office of Guest Services. For information, call (212) 873-6380.

The **Natural Science Center** introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, from 2:00 to 4:30 p.m., and Saturday and Sunday from 1:00 to 4:30 p.m. Closed Mondays.

Ethnic Programs featuring dance, music, films, lectures, and workshops are presented on weekends from 1:00 to 4:30 p.m. in the Leonhardt People Center.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street Lobby near the Great Canoe.

Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information before visiting the theater. Museum Members receive a 50% discount.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Museum Parking Lot.

Located on 81st Street. Open Monday through Thursday: 9:30 a.m. to 9:30 p.m. Friday through Sunday: 9:30 a.m. to 12:30 a.m. Rates: \$6.00 for cars, \$7.00 for buses. Parking is limited.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station.

Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwest Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

The generosity of the more than 300 corporations listed below and all our major contributors has led to a new feeling of excitement at the American Museum of Natural History. We've got new exhibitions, new themes and new approaches. All of which prove that 1984 is alive as never before in natural history.

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American Express Foundation
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Mobil Corporation

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Citibank, N.A.
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Main Hurdman Foundation
NCR Corporation
Owens-Corning Fiberglas Corporation
Price Waterhouse and Company
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Texaco Philanthropic Foundation, Inc.
Tiffany and Company
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Western Electric Fund
Westvaco Foundation

The Sperry and Hutchinson
Company
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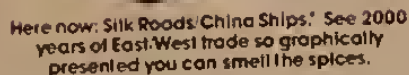
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AVNET, Inc.

Baaz-Allen & Hamilton, Inc.
 Bawne and Company, Inc.
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 Dallas Market Center Inc.
 Discount Corporation at New York
 Doubleday & Company, Inc.
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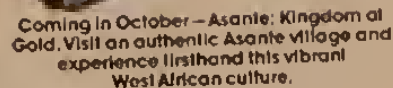
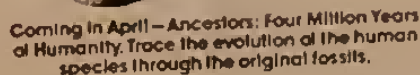
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The Howard Gilman Foundation
Gruuman Corporation
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Jaros, Baum and Bolles
The Johnson's Wax Fund
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We can make very useful to these countries as well as a number of other nations including the City of New York, who have the Museum buildings and providing funds for their operation and maintenance and to the New York State Council on the Arts National and Foundation Federal Government and the Arts National Government for the Humanities Institute the Museum several 60 people have been 20000 members and numerous individual contributors this day's commitment expressed as a public service by Ogden Hoffman

as the City of New York is an extremely important to the State Council Museum, the Council has a beautiful view of the mountains it is in position for a general artistic atmosphere of the location

AMERICAN MUSEUM OF NATURAL HISTORY

Sun

1 Members' Behind the Scenes Tour of the Department of Mineral Sciences. Reservations required. Sold Out.
1:00-4:30 p.m. Latin America Month. Leonhardt People Center. Free.
2:00 and 4:00 p.m. Jelom Vieira Dance Brazil. Kaufmann Theater. Free. Tickets at first floor information desk.

New Moon

8 1:00-4:30 p.m. Latin America Month. Leonhardt People Center. Free. (See page 8.)
1:30 and 3:30 p.m. Kaleidoscope Dancers. **Members' Family Program.** \$2.00 and open only to Members. Reservations required. (See coupon page 2.)

First Quarter (half moon)

15 1:00-4:30 p.m. Latin America Month. Leonhardt People Center. Free (See page 8.)
1:00 p.m. American Cetacean Society. Room 319. Free.
2:00 p.m. N.Y. Turtle & Tortoise Society. Room 129. Free.
2:00 p.m. N.Y. Paleontological Society. Room 426. Free.
3:30 p.m. Tribute to the Americas. Kaufmann Theater. Free. (See page 8.)

22 1:00-4:30 p.m. Latin America Month. Folk and traditional dances of Panama, Guaraní Indian harp making and demonstration, and Andean textiles. Leonhardt People Center. Free. (See page 8.)

Last Quarter (half moon)

29 1:00-4:30 p.m. Latin America Month. Argentinian & Bolivian folk dances, traditional & Creole music of the Andean Highland, and Waní symbolism in contemporary tapestry. Leonhardt People Center. Free. (See page 8.)
3:30 p.m. Achachila — Traditional, Creole and Contemporary Andean Music. Kaufmann Theater. Free. (See page 8.)

Mon

2 Courses for Stargazers begin today. Hayden Planetarium. (See page 9.)

3 Members' Behind the Scenes Tour of the Department of Mineral Sciences. Reservations required. Sold Out.

9 7:00 p.m. Our African Ancestors: Four Million Years of Controversy. Audiotum. Reservations required.

10 7:00-9:00 a.m. Bird Walk in Central Park. For information call (212) 873-7507. (See page 7.)

11 5:30 p.m. Ancestors: Four Million Years of Humanity; Members' Preview and Reception. Reservations required.
7:00 p.m. Human Nature in Evolutionary Perspective. Audiotum. Reservations required.
7:30 p.m. New York Mineral Club. Linder Theater. Free.

17 7:00-9:00 a.m. Bird Walk in Central Park. (See page 7.)
2:00 p.m. Barbañan Emissaries Along the Silk Route: Marco Polo and his Precursors at the Court of Khublai Khan. Lecture. Kaufmann Theater. Free. (See page 4.)
8:00 p.m. N.Y. Entomological Society. Room 129. Free.

18 7:00 p.m. Films from Audiotum. Free. (See page 4.)

19 9:00-11:00 a.m. Bird Walk in Central Park. (See page 7.)
2:00 p.m. Mammals Around the World. Gallery Talk. Assemble at first floor Information Desk. Free.
2:00 p.m. The Voyage of the Empress of China in 1794: The Initiation of U.S.-China Trade. Kaufmann Theater. Free. (See page 7.)

23 7:30 p.m. Tales of the Silk Route. Kaufmann Theater. Reservations required. (See page 7.)

24 7:00-9:00 p.m. Bird Walk in Central Park. For information call (212) 873-7507. (See page 7.)
2:00 p.m. Laddakh Then and Now. Lecture. Kaufmann Theater. Free. (See page 4.)
8:00 p.m. Met Grotto, Nat'l Speleological Society. Room 129. Free.

25 7:30 p.m. Lapidary and Gem Society. Leonhardt People Center. Free.
7:30 p.m. Dance Concert. High School of the Performing Arts. (See page 8.)

26 9:00-11:00 a.m. Bird Walk in Central Park. (See page 7.)
2:00 p.m. Morden-Graves North Asiatic Expedition. Kaufmann Theater. Free. (See page 4.)
6:15 and 7:30 p.m. Star Quest. **Members' Reception.** Reservations required.
8:00 p.m. N.Y. Microscopical Society. Room 419. Free.

Tue

Wed

Thu

Fri

Sat

6 7:00 p.m. William Moore analyzes the major Afro-Brazilian dance forms. Kaufmann Theater. Free.

5 2:00 p.m. Courtship in the Animal World. Gallery Talk. Assemble at first floor Information Desk. Free.
7:00 p.m. A Forum: Searching for our Ancestors. Audiotum. Reservations required.
7:00 p.m. Systematics Discussion Group. Room 419. Free.

13 Ancestors: Four Million Years of Humanity. ity, opens today in Gallery 1. Participants in Discovery Tour to Morocco depart from New York. For information about future tours, turn to page 10.

14 1:00-4:30 p.m. Latin America Month. Mexican Regional Dances. South American Folktales, and the Influence of Indigenous Cultures in Ecuadorian Art. Leonhardt People Center. (See page 8.)
Pan American Day Moon is at perigee (224,000 miles from the Earth)

21 1:00-4:30 p.m. Latin America Month. Folk and traditional dances of Panama, Guaraní Indian harp making and demonstration, and Andean textiles. Leonhardt People Center. Free. (See page 8.)

28 1:00-4:30 p.m. Latin America Month. Argentinian & Bolivian folk dances, traditional & Creole music of the Andean Highland, and Waní symbolism in contemporary tapestry. Leonhardt People Center. Free. (See page 8.)
3:30 p.m. Tehuantsiyo — Music of the Andes. Kaufmann Theater. Free. (See page 8.)



ROTUNDA

For Participating, Donor, and Elected Members of the American Museum of Natural History

Vol. 9, No. 5 May/June 1984



Sidney Horenstein

It's clear sailing on the Hudson for the Sloop Clearwater.

Up and Down the River

June 25, 27 and 30 and July 8
Reservations required

Four unique summer programs on the geology and natural history of the Hudson River are being offered this summer by the Department of Education. They include a symposium and three special cruises on the River

Geology at Sunset: A Cruise up the Hudson. Monday, June 25, 5:30-8:30 p.m. \$20, \$18 for Members.

A three-hour boat trip up the river at twilight, with running commentary provided by Sidney S. Horenstein of the Department of Invertebrates. Bring a bag supper and learn about the origins of the Palisades as you cruise through the northern hemisphere's most southerly fjord.

The Hudson River: A Symposium. Wednesday, June 27, 7:30-9:30 p.m., Main Auditorium \$10, \$8 for Members.

The Hudson River, a true fjord, flows past industries, commercial fisheries and a huge metropolis. Serving not only as a transportation route for ships, but as a viable breeding ground for fish and a dumping ground for sewage wastes, the Hudson is one of

the most intensively studied estuaries in the world. Symposium speakers will identify and discuss the environmental problems facing the river and the creatures which depend on it, and outline major changes which have taken place in the past decade.

Participants in the symposium are Robert H. Boyle, journalist, fisherman, environmental activist, and author of *The Hudson River, A Natural and Unnatural History*; Dr. John Sanders, Professor of Geology at Barnard College and chairman of the Hudson River PCB Settlement Advisory Committee; and Dr. C. Lavett Smith, curator in the Museum's Department of Ichthyology and a leading expert on freshwater fishes of New York State.

Horror Sailing on the Hudson River Sloop Clearwater. Saturday, June 30, 9:30 a.m.-12:30 p.m., or 1:30 p.m.-4:30 p.m. Limited to 48 persons per sail \$50, \$45 for Members

Learn more about natural history, ecology, and sailing with Museum instructors Sydney Buffum and Lisa Bresloff on this sail up the Hudson.

The expert crew of the *Clearwater* will show participants how to raise the sails, coil lines, and steer the sloop. Departure and landing will be from Pier 42 on the Hudson, at Morton Street.

The Hudson Highlands: Day Visit and Cruise. Sunday, July 8, 9:30 a.m. to 5:30 p.m. Limited to 95 persons \$85, \$80 for Members

Following a private visit to the Museum of the Hudson Highlands in Cornwall-on-Hudson, participants will take a three-hour cruise on the refurbished *Commander*, from West Point to West Haverstraw. Florence Stone, coordinator of Special Programs, will conduct the tour, along with hosts Charles Keene and Dennis Mildner of the Museum of the Hudson Highlands. Buses for the day trip will depart from and return to the Museum's West 77th Street entrance, and a picnic lunch will be served on the *Commander* at the start of the cruise

To register for the tours and symposium, please use the coupon on page 3. For more information, call (212) 873-7507

Wilderness Journey

Eight women with no previous wilderness experience are introduced to the harsh beauty of the Smoky Mountains. Members can join these women as they grapple with defeat and success in their efforts to become stronger as climbers, hikers, rafters, and individuals.

Page 5

Rhythms of the Caribbean

The history, performance and sounds of Caribbean music, including bomba, reggae, salsa and jazz, are presented in several programs during May and June.

Page 9

The Gospel

Black gospel music is a synthesis of nationalities and an expression of hope and salvation. Join Dr. Leonard Goines as he traces the growth of this musical form from its roots in folk churches to the present day.

Page 4

Playing Possum

The fans of this energetic marsupial declare it beautiful and delightful. Others find it a creature of many faults. Years ago, people ate 'possum stew, and even wrote verses about this extraordinary dish. Learn about how the opossum has inspired the people of our country in song and story in this special Members' program.

Page 8

Inanna, Queen of Heaven and Earth

Thursday, June 7, 8:00 p.m. Kaufmann Theater
\$8.00 for Members, \$10.00 for non-members



Photograph taken from W. Orlin, ed. *Der Akkadian*

Above, Ishtar appears on an Akkadian seal seated on her throne.
Below, Mesopotamian seal depicts Inanna as a winged goddess with one foot upon the back of her roaring lion.



Courtesy of The Oriental Institute, University of Chicago

Born of divine parents, she descended to earth to await her womanhood and become Queen of the Land of Sumer. After being cast into the underworld, she was reborn into the sky as Goddess of the Morning and Evening Star, of Love and Procreation. She was Inanna, the girl become woman become goddess, the queen of heaven and earth. The cycle of Inanna is the oldest recorded story known. It comes to us from the

ancient cultures of Sumer and Babylon, where it was inscribed over 4000 years ago into clay tablets and wall murals. The story of a powerful goddess requires the talents of a powerful storyteller. Rising splendidly to the task is Diane Wolkstein, whose premiere performance of the complete Inanna cycle sold out last year. Due to popular demand, we are pleased to offer a

repeat of this program, in which Ms. Wolkstein performs the ancient story of Inanna in all her aspects — as goddess, woman, lover, wife, seeker, ruler, and the source of all fertile power. A haunting original musical score, composed and performed by Geoffrey Gordon, will again accompany Ms. Wolkstein's recreation of the Inanna cycle. Diane Wolkstein teaches storytelling at the Bank Street College of Education and has been a featured storyteller at festivals, colleges, libraries, and museums for over fifteen years. She is the author of eleven books, among them *Inanna, Queen of Heaven and Earth*, which she co-authored with Sumerologist Samuel Noah Kramer. Musicologist Geoffrey Gordon has composed original scores for a variety of dance and theater ensembles, including several based on ancient cultures. For the Inanna cycle, he has used instruments comparable to those of Sumer and Babylon, such as drum, flute, and tambourine. This program is presented in cooperation with the C.G. Jung Foundation. Please use the adjacent coupon to order tickets for the program.

Inanna: Queen of Heaven and Earth. Thursday, June 7. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$8.00. Associate Members are entitled to one. All other tickets are \$10.00.

Number of Members' tickets	X \$ 8.00	\$
Number of non-members' tickets	X \$10.00	\$
Total amount enclosed:		\$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

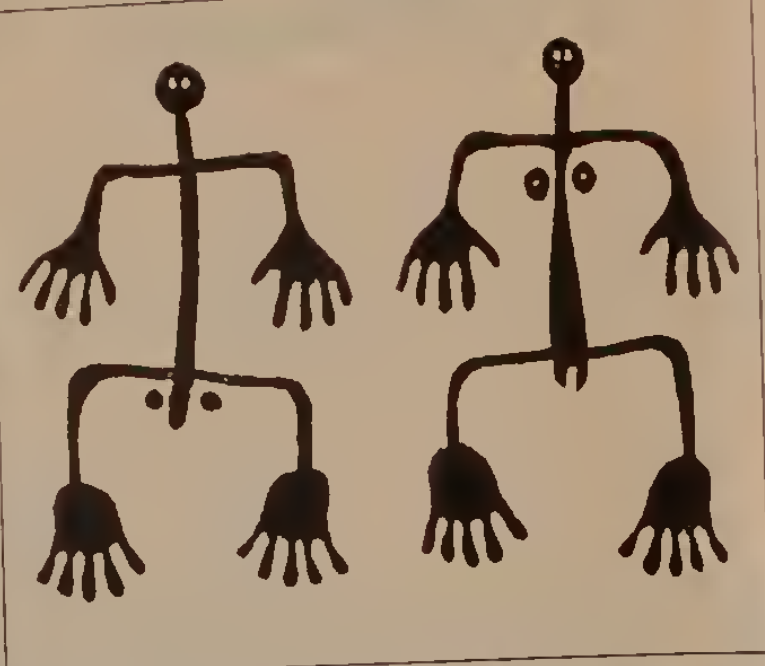
Membership category: _____

Daytime Phone: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Inanna, Queen of Heaven and Earth*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Versions of the Traditional

Wednesdays, May 2, 9, and 16
7:00 p.m. Linder Theater. Free.



Human figures like the ones above were carved by prehistoric people into southwestern rock walls. This is one of the many fine pictographs by Richard Erdoes to be included in his new book entitled *Native American Legends*.

Myth, music and poetry from diverse cultures will be presented in three evenings of *Versions of the Traditional*. Richard Lewis of the Touchstone Center will introduce each evening.

Wednesday, May 2: Paul Berliner, frequent soloist with the Paul Winter Consort and a protege of Zimbabwe's master mbira players, will perform and discuss the poetry from his book, *The Soul of Mbira. Music and Traditions of the Shona People of Zimbabwe*.

Wednesday, May 9: Dr. Derris T. Lock, Professor of Anthropology and Religion at Boston University and translator of *Finding the Center: Narrative Poetry of the Zuni*

Indians, will read from and discuss his new translation of the *Popol Vuh: A Highland Maya Book of the Dawn of Life*.

Wednesday, May 16: Richard Erdoes, artist, photographer, and writer of accounts of Indian life such as *The Sun Dance People*, will read and discuss myths from his new book *American Indian Myths and Legends*.

These programs are presented by the Department of Education in cooperation with the Touchstone Center. The programs are free, and seating is on a first-come, first-served basis. For more information, please call (212) 873-1300, ext. 559.

ROTUNDA

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Printed by Waldon Press, Inc., New York.

Concert of Castanets

Tuesday, May 22, 7:30 p.m., Main Auditorium
\$3.50 for Members, \$6.50 for non-members

There is a musical instrument so diminutive that it fits into the palm of your hand, yet its history is thousands of years old. It has served as a hunting tool and a primitive alarm clock. Known in different countries as *krotalo*, *hyoshigi*, *taro-tac*, and *city slicker sticks*, it is best known today as the castanet, and the image it evokes is of a Spanish dancer whirling through the Flamenco dance.

Members can learn more about this tiny instrument in a program featuring Matteo and Carola Goya of the Foundation for Ethnic Dance. These world-renowned performers

will discuss and demonstrate different ways of using castanets, and members of their company will perform musical arrangements from several diverse nationalities and cultures. Two guest artists will demonstrate the use of castanets in dance.

The program will culminate in a musical history "first," as the company forms a small chamber orchestra of castanets, each set carved from a different wood.

To order tickets, please use the coupon below. For additional information, please call the Membership Office at (212) 873-1327.

Click the Castanets. Tuesday, May 22. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$3.50. Associate Members are entitled to one. All other tickets are \$6.50 each.

Number of Members' tickets _____ X \$3.50 \$ _____
Number of additional tickets _____ X \$6.50 \$ _____
Total amount enclosed: \$ _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

Daytime Phone: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Click the Castanets, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.



Courtesy, Museum of Art, New York City



Clifford E. Horton, New York City

Top photograph: A Greek dancing moenad is depicted with castanets (*krotala*) on a ceramic vessel from approximately 500 B.C. Bottom photograph: The hands of Carola Goya hold two modern castanets.

A Special Bond

Monday, May 14, 7:30 p.m., Main Auditorium.
\$6.00 and for Members only.

SOLD OUT FROM APRIL ISSUE

Of all the emotional bonds we form throughout our lifetimes, one of the strongest is the first — that between mother and child. Although there are exceptions, it is usually from our mothers that we form our first impressions of the world and our place in it. We often look to mother for sustenance and nurturing, as well as for cues to appropriate behavior. If we sense that she is fearful, so are we. If she is affectionate and caring, we are likely to consider this behavior as the norm.

For over two decades, Dr. Jane Goodall has been studying the interactions of our closest biological relative, the

chimpanzee. Some of the information she has recorded may be applicable to the study of human relationships, since there are many similarities between human and chimpanzee mother and child bonds. Although chimpanzee fathers are not part of a sustained family unit, mothers and their dependent young stay together over a number of years, even as new siblings are born into the family. Dr. Goodall has observed that a chimpanzee mother's personality, age, and sociability can have a profound influence on the development of her offspring. In a special lecture open only to Members, Dr. Goodall

will discuss the chimpanzee family, with a special emphasis on the mother-daughter relationship. She will speak of her research at Tanzania's Gombe Stream Reserve, where ongoing studies of chimpanzee child rearing, learning, and social relations are taking place. Dr. Goodall will point out parallels and differences between human and chimpanzee parent-child relationships, and broaden our understanding of these fascinating animals she has come to know so well.

For information about ticket availability, please call the Membership Office at (212) 873-1327.

Programs on the Hudson

	For	AMNH Members
Geology at Sunset June 25	@ \$20	@ \$18
Hudson River Symposium June 27	@ \$10	@ \$8
Cruise on The Clearwater June 30 <input type="checkbox"/> 9:30 a.m. <input type="checkbox"/> 1:30 p.m.	@ \$50	@ \$45
Hudson Highlands Commander Cruise July 8	@ \$85	@ \$80
Total		

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Advanced Registration by mail is urged. Please make check or money order payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Department of Education, AMNH, Central Park West at 79th Street, New York, NY 10024. Any remaining tickets for the symposium will be sold on the evening of the program.

There are no refunds for the above programs. For further information, please telephone (212) 873-7507.

The Lafayette Theater Revisited

Saturday, May 19, 2:00 and 4:30 p.m.
Kaufmann Theater
Free

During its heyday in the 1920s and 30s, the Lafayette Theater was a sparkling showcase for black vaudeville stars. An evening at the Lafayette promised entertainment by some of the greatest black performers of the day.

Join Charles Cook, a "Master of Tapology" as he revisits the types of stars and performances which gave the Lafayette Theater its special flavor. Mr. Cook, who formerly performed at the Cotton Club and presently teaches tap dance at Yale University, will demonstrate

tap dancing of the vaudeville period.

The Woodhall Sisters and the Friedman Sisters will perform chorus line dances of the Lafayette. A tribute to the Moses Sisters will include a segment from the archival film *Scar of Shame*, and an appearance by Lucia Moses, the last surviving sister.

Film shorts of the Nicholas Brothers, Adlai Hall, Bessie Smith, and Jimmy Mordechai will also be shown.

For additional information about this program, please call (212) 873-1300, ext. 514.



Julia, Ethel and Lucia Moses. Lucia Moses Rickson, the last surviving Moses sister, will appear in *The Lafayette Theater Revisited*.

American Museum of Natural History

Discover the world with distinguished Museum lecturers on cruises and land tours in 1984. Our 30th year conducting superb travel vacations. Congenial companions. Entertaining and educational trips. Meticulous arrangements. Call (212) 873-1440 or write for information.

Please send information on the 1984 tours checked:

- ☐ Archeology Tour to Tibet and China June 15-July 13
- ☐ Alaska Wildlife Adventure June 29-July 17
- ☐ West European Waterways June 17-July 4
- ☐ Britain by Sea June 27-July 15
- ☐ Scandinavian Saga July 10-26
- ☐ Galapagos Islands Cruise August 6-17
- ☐ Papua New Guinea Expedition Sept 8-Oct 1
- ☐ East African Safari October 4-28

Name _____

Address: _____

City: _____

State _____

Zip _____

Detach this form and send it to Discovery Tours, American Museum of Natural History, Central Park West at 79th St., New York, NY 10024. (212) 873-1440

Nothing But A Man, Nothing But a Woman: Film and Forum

Saturday, June 2, 2:00 p.m.
Kaufmann Theater Free



Ivan Dixon and Abbey Lincoln star in *Nothing But a Man*.

Nothing But a Man is the story of an independent Alabama black man (Ivan Dixon) who courts and marries the daughter (Abbey Lincoln) of a class-conscious minister. Set during the second world war, the film peers into the myths and realities of black oppression, unemployment, and relationships between men and women.

Following the film will be a forum featuring Dr. Quinton Wilkes, Ph.D., psychoanalyst and psychotherapist at the

Postgraduate Center for Mental Health, and Judith C. White, M.S., C.S.W., the Director of Public Education at the Postgraduate Center for Mental Health and also a practicing psychoanalyst and psychotherapist. Donald Bogle, film historian and author of two prize-winning books on black American entertainers, is also on the panel.

The participants will discuss the film and the questions it raises concerning the roles of black men and women in

their relationships with one another. They will share the many insights they have gained in both professional work and life experience.

Nothing But a Man, Nothing But a Woman: Film and Forum on Relationships is co-sponsored by the African-American Program of the Museum's Department of Education and the Public Education Department of the Postgraduate Center for Mental Health. For further information please call (212) 873-1300, ext. 514.

Lift Every Voice and Sing

Friday, May 11, 7:00 p.m.
Kaufmann Theater
Free

You can hear it in the music and voices of many popular singers and groups. Its influences are also heard in musical forms such as rhythm and blues and jazz. Yet this powerful musical force has its roots — its heart and soul — set deep in rural folk origins.

Black gospel music is a synthesis of West African and Afro-American music, dance, poetry, oratory and drama. It is also a celebration of the Christian experience of salva-

tion and hope.

In *Gospel Music and the Black Consciousness*, Dr. Leonard Gomes will trace this musical style from its early growth out of 19th and 20th century folk churches to the present day. Examples of recorded music by solo singers, quartets, and gospel choirs will highlight his lecture.

Dr. Gomes himself is a musician, a professor of music, Vice Chairman of the Special Projects Panel of the

New York State Council on the Arts, and a jazz research consultant to the National Endowment for the Arts.

Seating for *Gospel Music and the Black Consciousness* is on a first-come, first-served basis, so Members are advised to arrive early to avoid disappointment. For additional information, please call the African-American Program of the Museum's Department of Education at (212) 873-1300, ext. 514.

Women in Central America and the Caribbean

Friday, May 4 and Saturdays, May 5 and 12
Kaufmann and Linder Theaters. Free.

Three days of films, workshops, poetry readings, and musical performances explore women's lifestyles and creative expression. These programs are presented by the Caribbean-Latin American Program of the Department of Education and the Círculo de Cultura Cubana, Inc. For further information, please call (212) 873-1300, ext. 514.

Friday, May 4

4:00-6:00 p.m. in the Linder Theater: *Express Yourself*. Mirtha Quintanales and Gloria Andazua will conduct a bilingual workshop on creativity and writing.

7:00-9:00 p.m. in the Kaufmann Theater: *When the Mountains Tremble*. This film tells the story of a Guatemalan Indian woman who is transformed by history from a migratory peasant to a leader shaping the destiny of her people. Lisa Davis will discuss Latin American women in film.

Saturday, May 5

10:30 a.m.-12:00 p.m. in the Linder Theater: *Voices of Women*, a poetry and short-story reading.

1:00-3:00 p.m. in the Kaufmann Theater: *That's Enough: Women on the Move*. Three slide show presentations by Marta Gallegos,

Catherine Benamou and Blanca Vázquez. The first is *Basta Ya!*, a portrayal of the daily life of rural and urban Central American women who are active in feminist and opposition movements. *Compañera* documents the struggles and developing consciousness of women labor organizers, journalists, political figures and activists in Puerto Rico's labor, social and feminist movements. *Letter to Idania*, based on the letter of a Nicaraguan combatant written to her daughter, presents images of a "not distant day when men and women will live as brothers and sisters in a free society."

4:00-6:00 p.m. in the Kaufmann Theater: *Lo Operación*, a documentary film about the mass sterilization of Puerto Rican women, will be introduced by director Ana María García. *Women and Culture*, a panel discussion, will be coordinated by Jean Franco of Columbia University. Topics include women in Haitian sociology and literature, and Central American women in the struggle for social change.

Saturday, May 12

2:00 p.m. and 4:00 p.m. in the Kaufmann Theater: The all-women troupe *Retumba con Pie* performs Latin Music.

These young women from Nebaj, Guatemala, appear in *When the Mountains Tremble*.



Miles to Go

Tuesday, June 12, 7:30 p.m., Main Auditorium
Free for Members, \$3.00 for non-members



Five women navigate a whitewater rapid on the Chattauga River in Northern Georgia.

Eight women went on a wilderness journey. One had been recently widowed and needed to build a new life alone. Another had undergone surgery for breast cancer. A third was an overweight mother of three, in

search of "something drastic" that might lead to self-acceptance.

The women ranged in age from 27 to 72. Their economic and cultural backgrounds were disparate, but they all had two major char-

acteristics in common: none had prior wilderness experience, and all were eager to meet and cope with changes and challenges in their lives.

Members are invited to the New York premiere of the award-winning documentary *Miles to Go*, in which you will follow the two-week journey of these women through the lush woods and rocky slopes of the Smoky Mountains.

The women learn to read maps and use a compass. They navigate through white water rapids in canoes and rafts. After only a day of practice, they must scale a sheer 100-foot rock cliff. The first to ascend, knees bleeding and body shaking from the exertion, is a proud 72-year-old grandmother named Mary-Frances James.

They survive under wilderness conditions by calling upon inner strength many never knew they had, and cooperating with women they had not met until the journey began. Often each must face a fear which so many share: the fear of not being able, not knowing how. During one gnapping sequence, in which the group is lost in the woods for three days, the desire to give up the struggle looms dangerously close.

How do these women grapple with the unfamiliar? In what ways are the challenges

they face metaphors for their lives? More than an exciting adventure film, *Miles to Go* is also a powerful and provocative study of group dynamics and individual strengths and frailties.

Miles to Go was co-produced by Hilary Maddux and Deborah Boldt. It has won numerous awards and honors, among them a Blue Ribbon at the American Film Festival, and an award

for Best Film and Best Documentary at the Philadelphia International Film Festival.

Following the 80-minute film, Ms. Maddux, Ms. Boldt, and some of the participants will talk about their many adventures, the obstacles they had to overcome, what they've learned from the journey, and who they are now. Members may register for the program by using the coupon below.

Miles To Go. Tuesday, June 12. Participating. Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets and tickets for non-members are \$3.00 each.

Please send me _____ tickets.

Name _____

Address: _____

City: _____

State _____

Zip _____

Daytime Phone: _____

Membership category: _____

Please mail this coupon with a self-addressed, stamped envelope to: *Miles To Go*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

St. Catherines Journal

The Last of its Kind in the Forest

St. Catherines Island lies five miles from the Georgia shore, south of Savannah. Once inhabited by the Gule (pronounced wallee) Indians, the island became a privately owned plantation in the early 19th Century.

Most recently, St. Catherines has come under the ownership of the Edward J. Noble Foundation, which generously supports numerous research programs conducted on the island. Such programs promote the conservation of St. Catherines' natural resources and beauty, the survival of endangered animal species, the preservation of historic sites and the expansion of knowledge in the biological and social sciences.

The American Museum of Natural History administers two of these research programs: the Archaeological Program and the Field Research Program. Since 1972 the Field Research Program has provided grants to qualified scientists and advanced graduate students from the Museum as well as other institutions of research and education, facilitating studies in zoology, ecology, botany and geology.

During May of 1983, Stanton Orser accompanied several Museum scientists to St. Catherines Island where he experienced firsthand the quality and range of ongoing Museum research there. His first St. Catherines Journal entry was published in the September, 1983 issue of Rotunda.

Many of you may remember Mr. Orser as the previous editor of Rotunda. He currently works in the Development Office. This new position — as is evident from the following article — has done nothing to dampen his writer's instincts.

Avian Pioneers

In 1981 Ron Odom — a biologist in the Endangered Wildlife Program of the Georgia Department of Natural Resources — led a team of researchers into the United States Army base at Fort Stewart to rescue a dozen Red-cockaded Woodpeckers. Army personnel were planning a Combined Arms Live Fire Exercise Facility (CALFEX) that would overlie one of the few areas where these birds could still be found. The forest had to be radically thinned for the war games, leaving a grid of individual trees standing 27 meters apart. One area had to be completely cleared for artillery impact.

When the Army began planning this project, concerned state, federal and private agencies held meetings to draft a plan outlining a way to "minimize the impact" on the birds. Twenty clans* in the range would be affected, losing forage and roosting trees. Five clans in particular — those living directly on the artillery impact area — would lose their habitats completely.

The committee decided to relocate those birds who were in immediate danger. Those which did not roost on the artillery impact area, since they were not in immediate danger, could be monitored where they were by the Fort Stewart wildlife staff.

Ron Odom, head of the endangered animal programs in the State of Georgia, took over the project. From the beginning, making each step of relocation as comfortable and non-disruptive as possible for the birds was of paramount importance. Time was the first consideration. Since the birds would be at their healthiest in the spring, and would also be pair-

ing to mate (and thus more likely to establish themselves), Odom's original plan was to move them in April.

Due to an extremely dry winter, however, the Army began their logging months ahead of schedule. An on-site inspection in February 1981 confirmed the worst. Nearly all the timber had been cut, leaving only the roost trees standing. The clans already showed signs of breaking up with individual birds flying great distances in different directions to forage. Some had already flown from the area. Odom decided to move up the date of relocation.

As soon as Fort Stewart wildlife personnel had learned of the army's proposed construction and activities, they became familiar with each member of the affected clans. During the next several months, staff members drew careful maps, noting the distances between the birds' roosts, their positions in relation to one another, each roost's height above the ground, as well as the characteristics of the immediate and neighboring terrain.

St. Catherines Island, near Fort Stewart, was selected as the relocation site because of its abundance of mature longleaf and slash pine forests. Although there were no Red-cockaded Woodpeckers on the island at that time, a sighting in 1936 suggests they may have once inhabited the barrier chain to which St. Catherines belongs. They may still live on Little Saint Simons Island a few miles to the south.

When relocations of endangered birds were first attempted, birds were simply transported from their original homes and released into their new habitats. Because of the confusion and stress a bird goes

May, 1983. St. Catherines Island.

Just before dawn I slipped out of my cabin into the morning darkness, and started up the dirt road leading past the Gwinnet House and away from the old plantation. I wanted to be in the pine forests at the northern end of the island by sunrise to find one of the rarest animals in North America — a Red-cockaded Woodpecker. There was only one remaining on the island.

Not being an ornithologist, or even a bird-watcher, put me at an obvious disadvantage. There are many woodpecker species on the island, including Red-bellieds, Red-headeds, Pileateds, Downies, and sapsuckers. I knew what the Red-cockaded Woodpecker looked like — small, black and white, very much like the Downy, but with distinct, white eyepatches. I had never, however, seen one myself. I did know to look for it in the mature longleaf pine forests that are its preferred habitat. There the birds chisel roosting cavities into living trees.

Years ago the Red-cockaded Woodpecker thrived throughout the southeast in forests like these. But lumbering has taken its toll on this species. Those trees that are mature enough to have substantial strong heartwood are needed for nesting purposes by the birds. These are precisely the trees which lumbering clears away, and does not replace.

As the birds' habitat was eliminated, their population declined accordingly. Ornithologists believe that today there are fewer than 10,000 of these once-numerous birds alive in the world. One estimate puts their total population as low as 3,000.

No serious lumbering has taken place on St. Catherines Island for several decades. For the past decade the island has been protected for scientific research. Just prior to the Civil War, it was a plantation. Following the war, when the cotton and rice plantation became less viable, longleaf and slash pine trees grew over many of the old fields. Some of these stands are now more than 140 years old.

Somewhere among these trees — which accounted for 40% of the island's forest — was the last remaining member of a group of Red-cockaded Woodpeckers that was brought here as part of a relocation experiment several years ago.



Plate 53 of Dr. Lester Short's monograph *Woodpeckers of the World* depicting males of the Red-cockaded Woodpecker (above) and the White-headed Woodpecker (below). The original color plate shows a small red spot near the top of the white ore on the Red-cockaded's head. All color plates in the monograph are by gifted artist George Sonström.

* In ornithology, a clan is a group of several interrelated families of birds.

through in unfamiliar territory, the success rate was dismally low.

Odom's innovative proposal was to simulate, as much as possible, the birds' former environment. He made several visits to St. Catherines, looking for a habitat that came as close as possible to the terrain at Fort Stewart. Finally satisfied that he had found suitable release sites, relocation began.

At sunset on February 16, 1981, wildlife personnel from the Fort marched into what was left of the forest and began rescuing the woodpeckers. Red-cockaded Woodpeckers, like most birds, have a very high metabolism and cannot afford to lose a day of feeding. For this reason the relocations had to begin at night, and be completed by dawn of the following day.

The rescuers relocated several members of a clan per night. As a bird slipped into its roost for the night, it was caught in a net and gently transferred to an individual, dark nylon holding bag. Each roost tree was immediately felled, and the section containing the roosting cavity was cut out of the trunk. The woodpeckers and their respective cavities were rushed to a private dock south of Savannah and taken by boat to St. Catherines Island. They were placed in three different sites, with approximately a mile's distance between each two. At the end of several nights, twelve Red-cockaded Woodpeckers found themselves in new homes.

Once all of the birds were on the island every attempt was made to simulate the birds' original environment at Fort Stewart. One group of researchers carefully banded the birds, mounting radio transmitters on five of them, while another prepared the cavity wedges for insertion into live trees at the release site. Individual trees, in roughly the same positions relative to one another as those at Fort Stewart, had been carefully selected. The wedges were trimmed to the size of holes which had been cut into the trees the previous day. Each roosting cavity was placed in the tree that most closely represented its previous position at Fort Stewart. Wherever possible the transported cavities faced in the same direction, stood at the same height, and were in the same relative position to other cavities as they had been in before.

Well past midnight each clan member was placed in its old cavity — the very same one it had entered earlier that same night at Fort Stewart! The holes were plugged with rags to keep the birds from escaping prematurely. The team knew from experience that Red-cockaded Woodpeckers would immediately leave a cavity when they were released — and in a dark, unfamiliar environment, they would unnecessarily face many perils, including predators. Just after the sun had risen, the plugs were pulled out by tugging strings from below, and the birds were allowed to leave whenever they were ready.

That the birds at each site would remain together was an essential part of the plan. There was no question that they would be disoriented in their new surroundings. The idea was to maintain elements of their environment that would be familiar to them. If everything went as planned, the confused and hungry birds would emerge and begin calling during their first few days on the island. Familiar voices would answer from roughly the same places they had every morning in the past. Old neighbors would hear each other, meet and feed together. At a time of dramatic change, those aspects of their lives that had remained constant would reassure them.

When the birds emerged, they began to explore their new environments. The birds at each site foraged together in a close group, moving in a wide circle around the site. So far, so good.

Soon after the relocation was accomplished, Dr. Lester Short of the Museum's Department of Ornithology joined the project. Author of the beautiful monograph *Woodpeckers of the World*, Dr. Short has recently been appointed head of the International Council for Bird Preservation's program concerning threatened woodpeckers. In the tradition of the Museum's ongoing relationship with various areas of research on St. Catherines, he and bioacoustician Jennifer Horne arrived on the island to help find new directions for the relocation program and monitor the birds.

Over the next several months, the birds' behavior was monitored daily. None of them attempted to leave the island, although some made confused, long flights perpendicular to the shore and along the beaches. It took several days — and in some cases weeks and even months — for the woodpeckers to begin roosting in the cavities again, rather than in the treetops. Some of the insect trees, weakened by the insects themselves, broke in half during heavy spring storms. But in time the relocation seemed a success. Some of the inserted cavities were gradually



A Red-cockaded Woodpecker at its transplanted roosting cavity.

accepted, and new ones were created. Two individuals even mated late that spring and, for the first time in decades, or maybe ever, a Red-cockaded Woodpecker was hatched on St. Catherines Island.

But problems soon began to overshadow this hopeful beginning. One by one the woodpeckers began to disappear. Those with radio transmitters disappeared almost immediately. Several were found in the fields after attacks by birds of prey. Large numbers of cruising hawks and falcons migrate past the island in the spring and fall. While their habitats do not overlap the Red-cockaded's, they can easily, in passing, dip in and pluck the woodpeckers out of the air.

Birds of prey were not the Red-cockaded's only problem. A good deal of bullying came from close relatives. Other species of woodpecker on the island — particularly Red-headed and Red-bellieds, became very aggressive during their own mating seasons, chasing the Red-cockaded out of their ranges. It was the beginning of the end for the avian "pioneer colony."

But One, Perhaps, Remained

By the time I arrived on St. Catherines Island, about two years after the relocation, only one Red-cockaded Woodpecker remained on the island. This last survivor had not been sighted for more than two months.

As the sun came up and began burning through the morning mists, I stood in one of the release sites. Although I later learned that the Red-cockaded's calls are the most distinctive sounds it makes, the only way I knew then of finding a woodpecker was listening for its hammer — a signal of communication as well as a means of procuring food. I waited quietly for the survivor to give itself away.

Slowly the island life around me began to stir. Deer entered the clearings to graze. Birds darted back and forth calling to one another. A rat-a-tat-tat sounded off in the woods, and I trotted to my first woodpecker find of the day: a Red-bellied drumming up breakfast on a dead tree trunk. A second, similar drumming — when I found it — turned out to be another of the same species.

I spent the day stalking across meadows and through forests listening for the hammerings. All of the common species were easy to find, and after a while I could tell which species was hammering in the distance just by the sound: the deep, resonant drumming of the Pileateds, the rapid fire of the Red-bellieds and Red-headeds, the tap-tap-patter of the Downies.

But nowhere could I find the Red-cockaded Woodpecker. When, by midafternoon, I had turned up nothing, I went back to one of the release sites and began scouting around for fresh cavities.

The roosting cavity of the Red-cockaded Woodpecker is unique among woodpeckers. Because this bird roosts in live trees (most other woodpeckers roost in dead ones), a stream of sap surrounds the entrance to its cavity. The bird even goes so far as to maintain this sap stream, constantly

pecking off the bark and scoring the tree. This behavior is believed to discourage snakes, which are not fond of slithering through sap, from entering the cavity.

I finally settled at one of two sites reputed to be where the Red-cockaded was last seen. It was the second area I had tried earlier that morning, and it occurred to me that if I had missed the bird going out, I might catch it coming back. In the distance I could hear the various other species drilling hole after hole. A few yards away was a pair of Red-bellieds, exploring various cavities they had put into a dead tree.

There were two cavities that could have belonged to the bird I sought — one of the original implants, and a new bore in an adjacent tree. The tree with the implant was one of those that had broken in half in a spring storm, and was an unlikely prospect. The sap around the entrance to the new cavity was streaming. This cavity certainly looked occupied, but so had several others. There were obviously subtleties I was missing.

The sunset came and went. I found myself sitting in the evening dusk, I was frustrated and unwilling to leave. I had exhausted the entire range of my bird-finding skills — however limited — and had not turned up the bird. Perhaps I never would.

I got up to leave, but as I started back along the road I heard a hammering in a nearby grove — not close enough to find in the dark, but near enough to hear clearly. It was a hammering I'd never heard before. I waited in vain to hear it again.

At dawn the next morning I was back in the same place, hoping to hear the unfamiliar sound again. The sun came up, and I waited more than an hour. Just as I was starting to get that now-familiar feeling of discouragement, I heard the hammering only twenty feet away.

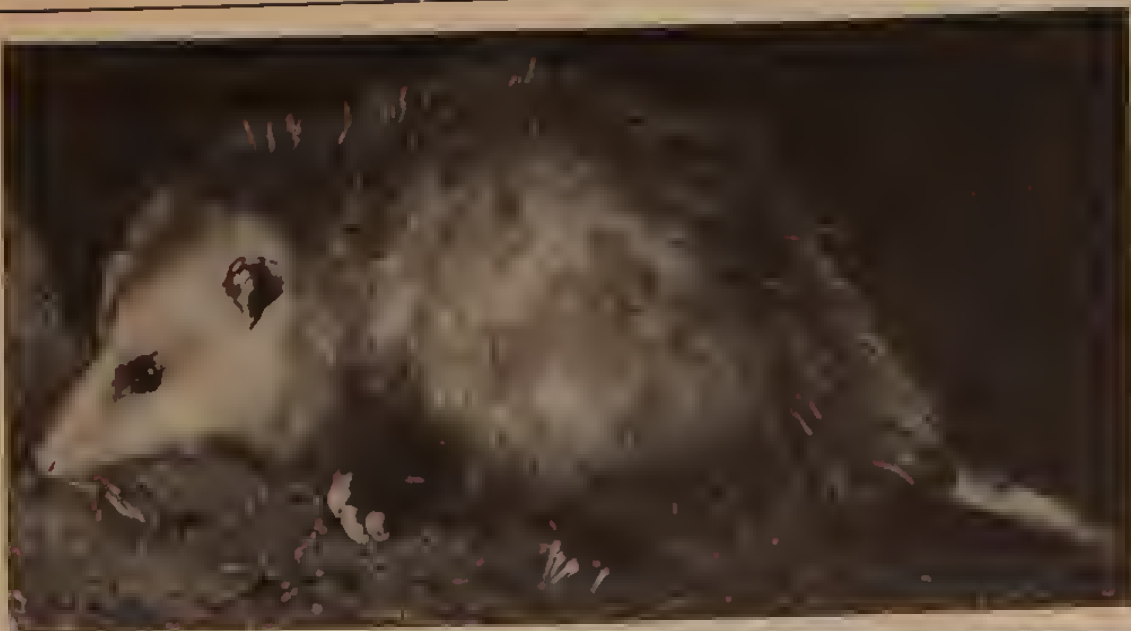
I crept over and was greeted by the caustic cheep and large white eye patches of the last Red-cockaded Woodpecker on St. Catherines Island — one of fewer than 10,000 in the entire world. It tapped for insects, cheeping and chirruping — sounds meant for others of its species which were no longer there.

Dr. Short later informed me that this lone Red-cockaded hammered far more than do others of its species who live in communities. It was as if the bird were constantly searching in vain for the reassuring answering hammer of its own species, a sound it might never hear again. Unless future transfers were made, the last Red-cockaded Woodpecker on St. Catherines Island would live out the rest of its life alone.

Yet the bird was busy and healthy. I followed it for an hour or so, watching it feed, letting it lead me from pine tree to pine tree. Then I headed back toward the old plantation. There were some people I needed to talk to. I knew they'd like to know their bird was still making it.

— Stanton G. Orser

More than 20% of the Red-cockaded Woodpeckers surviving in Georgia live in Fort Stewart forests. An ironic twist of fate leaves their habitats relatively protected, extensive shelling over the years has left their roosting trees so full of shrapnel as to be unfit for lumber.



AMNH negative #356220



AMNH negative #324735

The animals you see above have inspired generations of Americans in song, rhyme, story and recipe. In the bottom photograph a possum resorts to a famous strategy — playing possum.

Our Very Own Marsupial

Monday, June 18, 7:30 p.m.

Kaufmann Theater

\$3.00 for Members, \$5.00 for non-members

Feet like a monkey, tail like a rat,
Face like a fox, ears like a bat
Nose like a pig, whiskers like a cat
Wears a little gray wig, can you guess that!

Doug Elliot

This is the way naturalist-storyteller Doug Elliot describes one of his favorite

animals, the American opossum, or "possum," as we tend to call it. Members are invited to learn all about North America's only marsupial this June in an evening of songs, poems, folktales and slides, as Doug Elliot introduces you to a discipline you may not be particularly familiar with — possumology.

A Paul Lawrence Dunbar

poem will instruct you on the best way to eat a possum, and an Appalachian song will tell of the humorous relationship between a possum and a raccoon.

The program will include a Bayou tale about an unfortunate possum that ended up in a Cajun's gumbo soup, and a Native American story about how the possum created the designs on a turtle's shell.

Elliot will also describe the adventures of his own possum named blossom, and tell of his visit to the American Possum Growers and Breeders Association. And of course, as any proper possumologist must, he will tell a number of tales about "playing possum."

Elliot is a master storyteller, accomplished harmonica player, and an expert on plants and herbs. His articles on herbs and other natural history subjects have appeared in numerous national and regional magazines. He has told his stories, gathered during his travels through America's backroads, at folk festivals throughout the United States, and last year was declared the champion harmonica player at the Fiddler's Grove Festival in North Carolina.

To register for this program, please use the adjacent coupon

Possumology. Monday, June 18. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$3.00. Associate Members are entitled to one. All other tickets are \$5.00.

Number of Members' tickets	_____	X \$3.00	\$_____
Number of non-Member tickets	_____	X \$5.00	\$_____
Total amount enclosed:			\$_____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the Museum of Natural History and mail with a self-addressed, stamped envelope to: Possumology, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Take a Break! Urban Expressions: Rap, Graffiti and Break Dance

Tuesday, June 5, 7:00 p.m. and
Wednesday, June 13, 7:30 p.m.
Main Auditorium, Free.

Break dancing began in the South Bronx about a decade ago. According to legend, it got its name when rival gang members decided to declare a break in street fighting and compete to determine the best street dancers. The break is an athletic blend of gymnastics, dance, martial arts and pantomime which offers a creative outlet for competitive energies and a sense of unity for the dance teams. It has become a national phenomenon through the influence of entertainers like Michael Jackson, and the success of the movie *Flashdance*, which contains a break dance sequence.

Similarly, rap and graffiti are urban art forms which have spread rapidly during the last decade. Rap has become a grass roots poetry form used to articulate the progress, roles and needs central to human survival in the ghetto. Graffiti images travel from one area to another via mass transit, or may be read in their own environment by being inscribed on stationary objects or buildings.

The impact of these urban art forms has spread nationwide, and will be explored in two programs at the Museum which together

are entitled *Urban Expressions: Rap, Graffiti and Break Dance*.

Tuesday, June 5. *Wild Style*. The title of this film, directed by Charles Ahearn, describes the jointed and animated graffiti lettering which first appeared on New York City subway cars and has now been seen on canvas in art galleries. The film tells the story of the legendary graffiti artist Zoro, as he attempts to hold on to his identity and artistic integrity in the face of sudden recognition by the art world and competition from a rival graffiti gang.

Wednesday, June 13. A special performance combines elements of rap, graffiti and break dance in a historical overview of their development. A musical score written by Fareed Abdul-Haqq and graffiti visuals by Francisco Rios accompanies the rap group *Qualifies*. Featured break dancers are *The Break City Crew* and *Brothers Breaking Together*.

These two evenings are cosponsored by the Caribbean-Latin American Program and the African-American Program of the Department of Education. For more information, please call (212) 873-1300, ext. 514.

Death in a Mayan Universe

Wednesday, June 6, 7:00 p.m.
Main Auditorium
Free

The Mayan site of Palenque, in Chiapas, Mexico, stands in and seems a part of a world of lush rainforest and underground water. While by no means the largest of the Mayan ruins, Palenque may well be the most beautiful.

Lord Pacal, according to Mayan inscriptions, began his rule over Palenque in the seventh century A.D. at the age of 12. He was buried in a great funerary crypt in Palenque's Temple of the Inscriptions.

As befitted an important ruler, valuable objects including jade jewelry and pottery vessels were buried with him. Over his face a beautiful mosaic jade mask was placed. In a lecture entitled *Death*

and the Cosmos: A Seventh Century Maya View of the Afterlife, Linda Schele of the University of Texas at Austin will discuss the metaphor and meaning of death as inscribed on the coffin of this early king of the Americas.

The lecture is dedicated to the memory of Paul Kane, a valued and dedicated volunteer at the Museum from 1978 to 1983. It is made possible by his many friends as a tribute to him and his special interest in the Maya.

Since seating is on a first-come first-served basis, Members are advised to arrive early. For further information, please call the Department of Education at (212) 873-1300, ext. 559.

Peonies of Greece

On exhibition from May 11 through August 12



One of the lithographs which will be featured in the exhibit *Peonies of Greece: Myth Science and Art*. The peony depicted is of the species *Paeonia clusii*. The original work is in color.

Twelve lithographs of peonies found in Greece only during the past 15 years will be featured in *Peonies of Greece: Myth, Science and Art*, a new exhibition which explores the history of botanical illustration, and pays trib-

ute to the beauty of a flower.

The lithographs, based on the watercolors of artist and naturalist Niki Goulondris, are comprised of as many as fifteen colors and were prepared using an all but lost eighteenth century technique.

They were created by Takis Katsoulidis, master lithographer and professor at the Graphic Art School in Athens. Mr. Katsoulidis spent more than two years preparing this series.

The exhibition also includes manuscripts, woodcuts, and engravings representing different styles and methods of botanical illustration from first century Greece through the present day. The exhibition covers the traditional use of the tree peony as an artistic motif in the Orient. It also highlights the work of Nassos Daphnis, an artist and horticulturist who crossbred peonies to form new hybrids in the United States.

Niki Goulondris is co-founder, with her husband, of the Goulondris Natural History Museum in Kifissia, near Athens. She has long been active in a number of conservation efforts in her country and is the illustrator of *Wild Flowers of Greece*. She has stated that the peony has a special meaning for her, as it symbolizes the heritage, beauty, and strength of her native country.

Peonies of Greece: Myth, Science and Art will be on view in the Naturemax Gallery on the first floor, near the 77th Street entrance to the Museum.

Bomba E'

Tuesday, June 19, 7:30 p.m.

Main Auditorium

Free

La Bomba is many things. It is a wooden drum. It is a musical and oral expression of celebration and rhythm. It is a challenge between drummer and dancer. It is a group of dances which sprang to life in Africa to flourish years later on distant islands and continents. When African slaves arrived on Puerto Rican soil, Bomba was the most important social and artistic event available to them, a relief from the cruelty and hard work of everyday life.

Bomba E' is a theatrical event in which actors, dancers and musicians recreate the rhythm, grace and festiveness of the Bomba in each of its forms of expression.

The scene is a *barrio*, or neighborhood, in Puerto Rico. The *barrio* is celebrating the birthday of Julian Bultron, the

protagonist.

During this celebration, racial tension, jealousy, romantic intrigue and infidelity are among the endless twists and turns of human emotions and actions that occur. Yet festivity prevails in this musical comedy, in which African and Latin American music and culture are joined in the Bomba.

Bomba E' is created and performed by Negrura, Inc., a 12-member troupe based in Puerto Rico. The company represents and displays Puerto Rican traditions in their most authentic and original forms.

The program is sponsored by the Caribbean Cultural Center (V.A.R.C.R.C.) and the Caribbean-Latin American Program of the Department of Education. For additional information, please call (212) 873-1300, ext. 514.

Cuban Music: Under the Influence

Monday, June 25, 7:30 p.m.

Main Auditorium

Free

From chants to Yoruba deities to modern jazz, the influence of African rhythm and melody flows through the music of Cuba. This deep influence will be explored in *Under the Influence*, a performance program which explores the rich musical qualities of two areas of the world.

The musicians to take part in this program are as distinguished as they are varied. *Nueva Generación*, is an eight-person voice and percussion group led by Orlando Rios "Puntilla". The group will play *toques de santos*, Afro-Cuban liturgical music. "Puntilla" has performed in many nightclubs and recording studios from Havana to New York, and has kept musical company with top names in Caribbean music such as Paquito De Rivera and Daniel Ponce.

Tania León will conduct a chamber ensemble in works of the twentieth-century Cuban composers Amadeo Roldán and Alejandro García Caturla. Ms. León, a conductor, performer, and composer, is a founder of the Dance Theater of Harlem's Orchestra and of Meniscus, an organization which trains and promotes ethnic artists.

Daniel Ponce and his group, the Jazzbata Ensemble will play guaguancós, rumbas, guarachas and other traditional popular musical styles. Ponce, a master of both Cuban traditional music and jazz, plays regularly at New

York's Soundscape.

Michele Rosewoman will conduct an eight-piece jazz-fusion ensemble in *New-Yor-U-Ba*, an original piece which incorporates Orlando Rios' bata drums. Ms. Rosewoman has an extensive background in traditional music styles of Zimbabwe and Nigeria, as well as contemporary American jazz.

This program is the first time these four groups of musicians will share a bill, as well as the first time these four musical styles — so different and yet with a common thread running through them — will be heard together. While you enjoy the rich sounds of Afro-Cuban music, your program notes will inform you about the traditional instruments and musical forms being performed.

Under the Influence is co-sponsored by the Caribbean-Latin American Program of the Museum's Department of Education and the INTAR Latin American Gallery. The program complements INTAR's current exhibition on the life and work of renowned Cuban artist, writer, and ethnologist Lydia Cabrera. Now 83, Ms. Cabrera is considered the leading authority on Afro-Cuban folklore. The exhibition, on view May 14 through July 15, is entitled *Lydia Cabrera: An Intimate Portrait*. The gallery is located at 420 West 42nd Street in New York City.

Caribbean Music in Film

Three Wednesdays in May
Main Auditorium, Free

The history, performance and ethnic roots of Caribbean cultures and musical forms spring to life in the *Caribbean Film Festival*:

Wednesday, May 16,
7:00 p.m.

Salsa. This film depicts the development of Salsa music from its Caribbean roots to its performance in New York City. News feature editor Geraldo Rivera narrates this film, which includes important figures such as Ray Mañonado and Celia Cruz. *Salsa* will be introduced and discussed by Dr. Isabelle Leymanie, an ethnomusicologist from Yale University.

Wednesday, May 23,
7:00 p.m.

Heartland Reggae. Reggae is truly a "people's music." It plays a central role in Jamaica's history, religion and politics. This film features musician Bob Marley and highlights the "One Love

Peace Concert" held in Jamaica in the spring of 1978. At this historic concert, Marley attempted to make peace between the two warring national parties whose conflict had spawned gang warfare in the cities. *Heartland Reggae* also features reggae stars Peter Tosh, Jacob Miller, Judy Mowatt, and U-Roy and the I-Threes.

Wednesday, May 30,
7:00 p.m.

Sirena en B — a Multimedia Slide Show from Panama. The evening will begin with this show, inspired by the painted buses of Panama. The buses of Panama are veritable moving galleries of art. Bus owners and drivers alike appreciate and pursue artists who have the gift of giving life to a cold machine. Passengers with a taste for the aesthetic will pass up one bus to wait for

another which has greater style and character.

In this photo essay/narrative, the viewer follows Lucho, a bus driver in the capital city, in his search for a painting for his bus. This Panamanian story moves to a Salsa beat.

The multimedia presentation was created by El Grupo Portabelo, a collective of artists of many disciplines.

Camaval y Caretas. Following the multimedia presentation, viewers will journey from Panama to the Dominican Republic, where Camaval is a rite of passage. Camaval marks a division between the profane and the sacred, and between disorder and social norms. This documentary presents Camaval as it is practiced in various areas of the Dominican Republic, with a special focus on the construction of Camaval masks. Other films to be announced.

For additional information, please call the Department of Education at (212) 873-1300, ext. 514.

Museum Notes

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Terrace Cafe. Open daily on warm days from May through October, from 11:30 a.m. to 4:00 p.m. Located on the steps of the Roosevelt entrance on Central Park West.

Museum Parking Lot. Located on 81st Street. Open Monday through Thursday, 9:30 a.m. to 9:30 p.m. Friday through Sunday: 9:30 a.m. to

12:30 a.m. Rates, \$6.00 for cars, \$7.00 for buses. Parking is limited.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays, noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Special Exhibitions

Peonies of Greece: Myth, Science and Art. May 11 through August 12. This exhibit celebrates the beauty of the peony in classical legend, botanical discov-

ery and artistic expression. These lithographs, executed from botanical paintings, feature 12 species of peony. Naturemax Gallery.

Silk Roads-China Ships. Through May 12. An exhibition of more than 400 artifacts illustrating 2,000 years of commerce in goods, technology, art and ideas which traveled the major trade routes between Europe and the Orient. Gallery 3.

Bicycles and Dragons: Two Views of China. Through July 15. A photographic exhibition featuring China in the past and in the present.

Ancestors: Four Million Years of Humanity. Through September 6. One of the most significant paleontological exhibitions ever undertaken, featuring human, pre-human, and other primate fossils.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and

exhibits of the Museum's most popular halls. They leave regularly from the second-floor Information Desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

Group package tours for *Silk Roads/China Ships* are offered by the Office of Guest Services through May 12. For information, call (212) 873-6380.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, from 2:00 to 4:30 p.m., and Saturday and Sunday from 1:00 to 4:30 p.m. Closed Mondays. The center celebrates its tenth anniversary in the month of May.

The Leonhardt People

Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m. In July, Japan will be the featured country.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Happenings at the Hayden

View the eclipse safely with the Hayden Planetarium staff on their front lawn on May 30. For more information, read the adjoining article and/or call (212) 873-8828. Below, viewers use welder's glass #14 for safety.

Be Here When the Sun Disappears!

On Wednesday, May 30, the moon will pass in front of the sun, creating an annular solar eclipse, and part of the sun will seem to disappear.

To witness this special event, telescopes will be set up on the Hayden Planetarium lawn from 11:00 to 2:30 p.m. on the day of the eclipse.

On Thursday, May 24 and Tuesday, May 29, a live show on solar eclipses will be presented at 8:00 p.m. Admission for this show is \$3.00 for adults and \$2.00 for Participating, Donor and Elected Members, children, students with I.D., and senior citizens. For additional information please call 873-8828.

View the Eclipse Safely

During the month of May, a three-minute mini-feature will focus on the eclipse and how to view it safely. The mini-feature will accompany the Planetarium's public Sky Show performances Mondays through Fridays at 1:30 and 3:30 p.m. For additional information, call (212) 873-8828.

Sky Shows

Star Quest. Through September 3. Come take a look at past, present and future conquests of space from the earliest rockets to tomorrow's planetary outposts and flights to the stars. Leonard Nimoy of *Star Trek* fame narrated the sound track.

Sky Show Times

Weekdays 1:30 and 3:30 p.m.
Saturday: 11:00 a.m. and hourly from 1:00 to 5:00 p.m.
Sunday: hourly from 1:00 to 5:00 p.m.

Admission for Participating Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member

prices please call (212) 873-8828.

Admission to the Planetarium includes two floors of astronomical exhibitions.

Laser Zeppelin.

Laser visuals and the music of Led Zeppelin combine to create a unique and dazzling

experience of sight and sound.

Friday and Saturday at 7:30, 9:00 and 10:30 p.m.

Admission for Participating Donor and Elected Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information about the laser show, call

(212) 724-8700.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

When in doubt, call before coming. All prices and show times are subject to change without notice.



Allen Selust

Sat

Fri

Thu

Wed

Tue

Mon

Sun

5 10:30 a.m.-6:00 p.m. Women in Central America and the Caribbean For information about a poetry and short story reading, slide show presentations, film and a panel discussion, please turn to page 5
1:00-4:30 p.m. Native American Month. American Indian Dances, People of the Southwestern Desert, Navajo Textiles. Leonhardt People Center. Free

4 4:00-6:00 p.m. Women in Central America and the Caribbean. Bilingual Workshop on Creativity and Writing. Linder Theater. Free Page 5.
7:00-9:00 p.m. Women in Central America and the Caribbean. Latin Women on Film. Kaufmann Theater Free. Page 5

3 9:00-1:00 a.m. Bird Walks in Central Park. Department of Education.
2:00 p.m. Dynamics of Human Evolution Gallery Talk. Assemble at first floor Information Desk. Free.
7:00 p.m. Systematics Discussion Group. Room 419. Free

2 7:00 p.m. Versions of the Traditional. Performance by Paul Berliner. Linder Theater. Free. Page 2
7:45 p.m. Amateur Astronomers Association Kaufmann Theater. Free.

1 6:00 p.m. Evolution of the Human Brain. Fifty-Fourth Annual James Arthur Lecture. Kaufmann Theater. Free.

12 11:00 a.m. Map Society Room 419. Free
1:00-4:30 p.m. Native American Month Native American Theater. Faces of the Ancestors: Photos of North American Indians; Navajo Textiles Leonhardt People Center. Free
2:00 p.m. and 4:00 p.m. Women in Latin American Culture Return to Pie A Musical Performance. Kaufmann Theater Free. Page 5.

11 Peonies of Greece Myth, Science and Art exhibit, opens today in the Naturemax Gallery. Page 9.
7:00 p.m. Gospel Music and the Black Consciousness Kaufmann Theater Free. Page 4.

10 9:00-11:00 a.m. Bird Walk in Central Park. Department of Education.
2:00 p.m. The Hajj: A Pilgrimage to Mecca. Gallery Talk. Assemble at first floor Information Desk.
8:00 p.m. N.Y. Microscopical Society. Room 419. Free.

9 7:00 p.m. Versions of the Traditional: Popul Vuh: A Highland Maya Book of the Dawn of Life. A reading with Dennis Tedlock. Linder Theater. Free. Page 2.
7:30 p.m. N.Y. Mineral Club. Leonhardt People Center. Free

8 7:00-9:00 a.m. Bird Walk in Central Park. Department of Education.
First Quarter (half moon)

19 1:00-4:30 p.m. Native American Month. American Indian Dances. Native American Symbolism. Native American Traditions and Mythology Leonhardt People Center. Free.
2:00 and 4:30 p.m. The Lafayette Theater Revisited Kaufmann Theater. Free. Page 4

17 9:00-11:00 a.m. Bird Walk in Central Park. Department of Education.
2:00 p.m. Endangered Species and Their Habitats. Gallery Talk. Assemble at first floor Information Desk.

16 7:00 p.m. Versions of the Traditional. American Indian Myths and Legends. Linder Theater. Free. Page 2.
7:00 p.m. Caribbean Film Festival: Salsa. Main Auditorium. Free. Page 9.

15 7:00-9:00 a.m. Bird Walk in Central Park. Department of Education.
8:00 p.m. N.Y. Entomological Society. Room 129. Free.

14 7:30 p.m. Mothers and Daughters. Special Members' Program. Main Auditorium \$6 and open only to Members. Reservations required. Page 3

13 1:00-4:30 p.m. Native American Month. Native American Theater. Faces of the Ancestors: Photos of North American Indians; Navajo Textiles. Leonhardt People Center. Free.
2:00 p.m. N.Y. Shell Club Room 419. Free.

26 1:00-4:30 p.m. Native American Month. Native American Theater. Native American Imagery in Art. Native American Dolls: The Stuff of Dreams. Leonhardt People Center. Free.

24 9:00-11:00 p.m. Bird Walk in Central Park. Department of Education.
2:00 p.m. The Dinosaurs. Gallery Talk. Assemble at first floor Information Desk

23 7:00 p.m. Caribbean Film Festival: Heartland Reggae. Auditorium Free. Page 9.
7:30 p.m. Lapidary and Gem Society. Leonhardt People Center. Free.

Moon is at apogee (251,300 miles from the earth).

22 7:00-9:00 a.m. Bird Walk in Central Park. Department of Education.
7:30 p.m. Click the Castanets. Members' Evening Program. Reservations required. Page 3.
8:00 p.m. Met Grotto: Nat'l Speleological Society. Room 129. Free

21

20 1:00-4:30 p.m. Native American Month. Native American Dances; Native American Symbolism; Native American Traditions and Mythology.
1:00 p.m. American Cetacean Society. Room 319. Free.
2:00 p.m. N.Y. Paleontological Society. Room 426. Free.

Last Quarter (half moon)

29 8:00 p.m. Solar Eclipse Event. Hayden Planetarium. Tickets required. Page 10

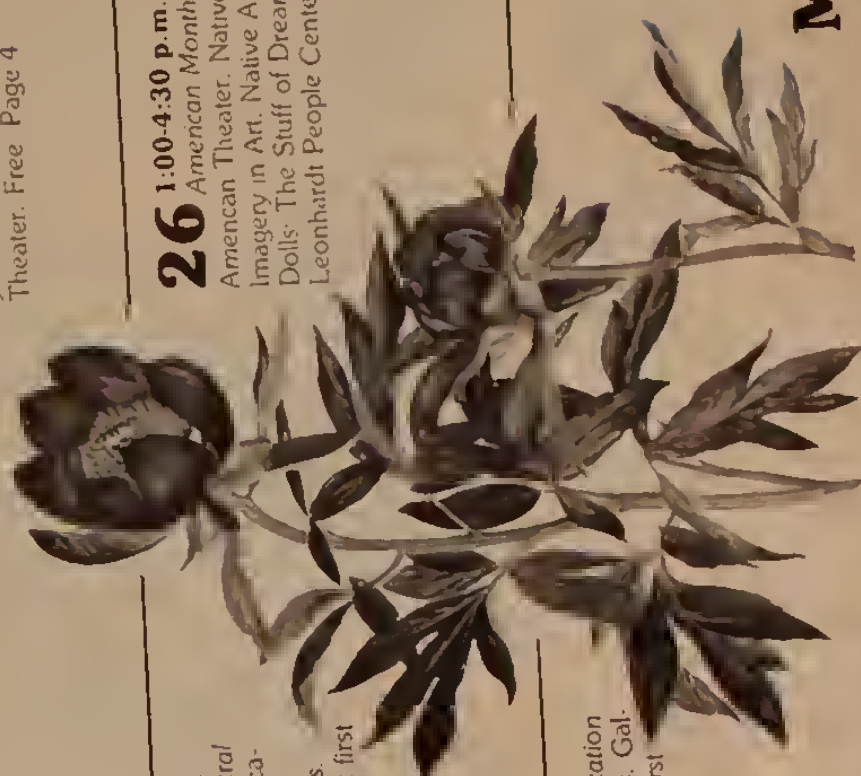
28

27 1:00-4:30 p.m. Native American Month. Native American Theater. Native American Imagery in Art: Native American Dolls. The Stuff of Dreams. Leonhardt People Center. Free

31 2:00 p.m. Education in Muslim Lands. Gallery Talk. Assemble at first floor Information Desk

30 11:00 a.m.-2:30 p.m. Solar Eclipse Watch. Hayden Planetarium Lawn. Free. Page 10.
7:00 p.m. Caribbean Film Festival: Sirena en B — A Multimedia Slide Show from Panama. Carnaval y Caretas (a documentary). Main Auditorium. Free. Page 9

Annular eclipse of the sun. New Moon



6 11:30 a.m., 1:30 and 3:30 p.m. Across the Great Salt Desert. Special Members' Program. Kaufmann Theater. Reservations required.
1:00-4:30 p.m. Native American Month. American Indian Dances; People of the Southwestern Desert; Navajo Textiles. Leonhardt People Center. Free.

May 1984
American Museum of Natural History

Sun
June 1984
American Museum
of Natural History

3 1:00-4:30 p.m. Cultures of the Middle East. Kurdish Dance and Music. Islam. The Pilgrimage to Makkah. Leonhardt People Center Free.

10 1:00-4:30 p.m. Cultures of the Middle East. Dance Oriental, Egypt Through the Eyes of L.D. Frazier. Leonhardt People Center. Free.

1:00 p.m. American Cetacean Society. Room 319. Free.
2:00 p.m. N.Y. Shell Club Room 419. Free

17 1:00-4:30 p.m. Cultures of the Middle East. Dance of the Middle East. Islam: Science and Medicine. Kurdish Culture and People. Leonhardt People Center. Free.

Participants in the West European Waterways Cruise depart for Malaga, Spain. Discovery Tours: (212) 873-1440.

24 1:00-4:30 p.m. Cultures of the Middle East. Dance of the Middle East. Kurdish Arts and Crafts; Culture of Morocco. Leonhardt People Center. Free.

25 5:30-8:30 p.m. Geology at Sunset: A Cruise Up the Hudson. \$18.00 Members, \$20 non-Members. Reservations required. Page 1.
7:30 p.m. Cuban Music: Under The Influence. Main Auditorium. Free. Page 9.

26 8:00 p.m. Met Grotto: Nat'l Speleological Society. Room 129. Free.

27 7:30-9:30 p.m. The Hudson River: A Symposium. \$8.00 for Members. \$10.00 for non-Members. Reservations required. Page 1.
7:30 p.m. Lapidary and Gem Society. Leonhardt People Center. Free.
Participants in the Britain By Sea Cruise depart for Paris. Discovery Tours: (212) 873-1440

Tue

Wed

Thu

Fri

Sat

1

2 1:00-4:30 p.m. Culture of the Middle East. Kurdish Dance and Music. Islam: The Pilgrimage to Makkah. Leonhardt People Center Free.
2:00 p.m. Nothing But a Man. Nothing But a Woman. Film and Forum Kaufmann Theater Free Page 4



Charles Porter

7 8:00 p.m. Inanna. Queen of Heaven and Earth. Special Members Program. Reservations required. Page 2.

Moon is at perigee (229,700 miles from the earth).

5 7:00 p.m. Urban Expressions: Rap. Graffiti and Break Dance: Wild Style (film) Auditorium Free Page 8
6 7:00 p.m. Death and the Cosmos: A Seventh Century Maya View of the Afterlife. Lecture. Auditorium Free Page 8
7:45 p.m. Amateur Astronomers Association Kaufmann Theater Free

First Quarter (half moon)

12 7:30 p.m. Miles To Go. Main Auditorium. Reservations required. Page 5.

14

13 7:30 p.m. Urban Expressions. Rap. Graffiti and Break Dance. Featuring the Break City Crew and Brothers Breaking Together. Auditorium. Free Page 8
7:30 p.m. N.Y. Mineral Club Linder Theater. Free

Full Moon

19 7:30 p.m. Bomba E'. Auditorium. Free Page 9

20 Moon is at apogee (251,200 miles from the earth).

22

21 Last Quarter (half moon)
Summer Solstice: summer begins at 5:02 a.m.

23 1:00-4:30 p.m. Cultures of the Middle East. Dance of the Middle East. Kurdish Arts and Crafts. Culture of Morocco. Leonhardt People Center Free

29

28 New Moon

30 9:30 a.m.-12:30 p.m. Harbor Sailing on the Hudson River Sloop Clearwater. Reservations required. Page 1.
1:00-4:30 p.m. Cultures of the Middle East. Dance Oriental. Music of the Kavkaz (Caucasus). Israel and the Middle East. Leonhardt People Center. Free

Participants in the Alaska Wildlife Adventure depart for Anchorage Discovery Tours. (212) 873-1440

New York Historical Society



ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History

Vol. 9, No. 7 September 1984



A Saturnalia moth larva munches on the edge of a leaf.

Raymond A. Mendez

The Natural Moment

Tuesday, October 2, 7:30 p.m.
Main Auditorium
Free and open only to Members

Ray Mendez and his students were quietly observing a group of leaf-cutting ants, when they heard a loud crash through the foliage. When they ran to investigate, a fierce drama unfolded before their eyes. A baby boa constrictor had caught a palm tanager and together the two had fallen to the ground.

With not a moment to lose, Ray Mendez focused his camera and shot — as the boa slowly devoured the bird. He had caught a natural moment on film.

Jeff Simons is another photographer always ready for a natural moment. On assignment in Newfoundland to make a film on salmon fishing, he heard of whales who were accidentally caught in fish nets. He thought this

would be an excellent subject for a photography project, and spent a month looking for caught and stranded whales. His aim was to use the photographs to educate people about whale conservation. To reach one whale he had to drive fourteen hours, then fly in a seaplane through dense fog to a tiny island. What some people will do for a photograph!

Members may already be familiar with the work of these two excellent photographers, who have contributed to *Natural History's* "Natural Moments" section. This month the photographers invite you to share, in person, some of their favorite natural moments.

Members will view fascinating slides taken by each photographer, and

learn the story behind each shot — why the photographer took the picture, how he approached the shot, the equipment he used, and how his knowledge of the subject enhanced his work.

Mendez will discuss his work on small land animals, such as reptiles and insects, while Simons will concentrate on his shoreline and underwater photography of animals such as whales and puffins. Each type of photography has different demands. The photographers will discuss these differences and show Members some of the specialized equipment they use to capture that abundant yet elusive phenomenon — the natural moment.

To register for the program, please use the coupon on page 2.

Mead Film Festival

Celebrate human cultures from around the world by attending this year's Margaret Mead Film Festival at the Museum from September 17 through 20. This issue contains a complete schedule of films.
Pages 7-10

A Ghostly Program

Prepare yourself and your children for Halloween by listening to tales of ghouls and ghosts from around the world. Storyteller Laura Simms and musician Steven Gorn are back at the Museum with their fifth journey into the world of the unexpected.
Page 3

The Right One For You

This issue is full of courses — courses for people who love to stare at the sky, courses for people who love music of foreign lands, courses designed especially for children, and much much more. Somewhere in this issue is the course for you.
Pages 4, 5, 6, and 14

Asante Preview

Members are invited to visit a kingdom of gold, four days before the new Asante exhibition opens to the general public.
Page 11

Te Maori

Tuesday, September 11, 7:30 p.m.
Main Auditorium. Free.

Close to a thousand years ago, a group of Polynesian voyagers from the legendary island of Hawaiki set out from their homeland in a fleet of canoes. The Pacific currents carried them to a new land, where they settled and became the people known as the Maori. Over the centuries the five Maori tribes of New Zealand have developed a rich cultural and artistic heritage which will be celebrated this month by a special performance at the Museum.

Music and song are an integral part of Maori life, often used to accompany rituals and

whakairo, or speechmaking. The twenty members of this Maori cultural group will perform in their native costume, singing songs about greetings, love, and laments. They will dance the *haka*, a Maori war dance, and the *poi*, which involves skillfully twirling balls on strings.

Te Maori is presented in conjunction with the exhibition *Te Maori: Maori Art from New Zealand Collections*, at the Metropolitan Museum of Art from September 11 through January 6, 1985. The group performing at the American Museum is part of a

large party of Maori people, including twenty elders who are presently in New York City. They came here especially to lift the sacredness, or *tapu*, from the *Te Maori* exhibition, making it appropriate for their ancestral treasures to be seen by public eyes.

This performance, sponsored by the Department of Education, is free to all Museum visitors. Seating will be on a first-come, first-served basis, and Members are advised to arrive early to avoid disappointment. For further information, please call (212) 873-1300, ext. 514.



Maori Performers

New Zealand Consulate

Origami Classes and Workshops

One of the highlights of the year is the annual display of the Origami Holiday Tree in the Roosevelt Rotunda. Not only is the tree fascinating to explore with its dancing dinosaurs and insects, but Museum visitors also have an opportunity to learn something about the art of origami — thanks to the volunteers who teach simple models at a table stationed next to the tree.

This autumn a special series of classes will train those who would like to teach origami during the holidays. Taught by volunteer origami specialists Alice Gray and Michael Shall, the classes will be held on four consecutive Wednesdays from October 10 to October 31, from 6:30 to 8:00 p.m. Class members (no repeaters please!) will learn to fold numerous models

including a fox, a panda, a jumping frog and a star basket. The instructors will emphasize how to teach these techniques to Museum visitors.

The classes and all necessary materials will be offered free of charge. However, participants will be expected to volunteer an amount of teaching time equal to their instruction time at the origami table when the Holiday Tree goes up.

Class size will be limited, so Members are encouraged to register early. For further information and registration, please contact the Volunteer Office at (212) 873-1300, ext. 472.

Members interested in exploring origami more intensively may also wish to register for a workshop on paperfolding which is being

offered by the Friends of the Origami Center of America. Ten special paperfolding sessions will take place on Saturday and Sundays between September 9 and November 10. Beginners, intermediate, and advanced paperfolders are all welcome.

Although the workshops are intended primarily for members of the Friends of the Origami Center, all sessions will be open to the public. To receive an announcement and registration form, send a stamped, self-addressed envelope to Friends of the Origami Center of America, 15 West 77th St., New York, N.Y. 10024.

And last but not least — for even more opportunities to learn the art of paperfolding, take a look at the listing of Fall courses featured on page 5 of this issue.

Members' Memo

Faces for Children

Peggy Cooper, the Museum's exhibition coordinator, was browsing at a newsstand on Broadway one day when an issue of *People Magazine* caught her eye. An idea flashed through her mind — why not a magazine for children about the peoples of the world?

Ms. Cooper returned to the Museum, enlisted the help of former Museum anthropologist Nancy Bronstein and exhibition designer Ralph Appelbaum, and created a sample issue. She took the idea to Cobblestone Publishing, Inc. They went for it, and agreed to publish the magazine with the Museum's cooperation. Thus *Faces*, the first anthropology magazine for children eight to fourteen, was born.

The first issue of *Faces* is coming out next month. It is inspired by our celebrated Hall of Mollusks and Mankind, and will explore the theme of shells and their varied use in different cultures around the world. The issue will feature fascinating articles on topics such as how people use mollusks as food, to produce music, and to amass wealth. A picture essay will feature other diverse uses of shells and a Fiji folk tale will tell the story of a boy who tangles with a giant clam.

A large portion of this issue, as with all future issues, will be devoted to activities for children, such as a shell puzzle, a recipe for shell cookies, and a snailscotch game.

Each issue of *Faces* will contain articles and activities related to a particular theme. Themes being considered for future issues include Pueblo life, hats, underwater archeology, and how people of different cultures and climates keep warm.

If you have a favorite child, grandchild or friend who may be interested in subscribing to this unique magazine, you can obtain more information by writing to:

FACES
Cobblestone Publishing, Inc.
20 Grove Street
Peterborough, NH 03458

Members will receive a special charter subscription rate. You will soon receive a mailing about *Faces*, so look for it in your mailbox! In addition, we plan to occasionally excerpt articles and activities from this pioneer children's magazine in future issues of *Rotunda*.

Henry H. Schuchman

The Natural Moment. Tuesday, October 2. This program is free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00

Number of tickets: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *The Natural Moment*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Mail Registration closes September 20. After that date, please call (212) 873-1327 for ticket availability.

Ghosts and Ghouls and Other Strange Things

Saturday, October 27
Children's Program: 1:30 and 3:30 p.m.
Adults' Program: 7:30 p.m.
Kaufmann Theater
See coupon for ticket prices.



Kim Hamilton

Prepare yourself for Halloween by taking a step into an eerie, supernatural world where a girl can marry a ghost and a father can retrieve his daughter from the land of the dead. In the afternoon program created especially for children, a woodcutter meets a snake, and a man digs and finds a big hairy toe in the ground.

We are proud to invite storyteller Laura Simms and musician Steven Gorn back to the Museum for their fifth year of ghostly stories and music, designed to create an unforgettable and mysterious evening for adults, and some good, clean Halloween fun for children ages eight and above.

As Ms. Simms and Mr. Gorn combine their immense talents to recreate Native American, African, and Central Asian tales of ghostly wanderings, spirit activities and ghoulish utterances, prepare yourself for the unexpected.

To register for Ghosts and Ghouls and Other Strange Things, please use the adjacent coupon.

Ghosts, Ghouls and Other Strange Things, Saturday, October 27. Members' Tickets are \$3.00 for adults and \$2.00 for children. Non-members' tickets are \$4.00 for adults and children.

Number of Members' children tickets	X \$2.00 \$
Number of Members' adult tickets	X \$3.00 \$
Number of non-members' tickets	X \$4.00 \$
Total amount enclosed:	\$

Please indicate a first and second choice, if possible.
1:30 p.m. 3:30 p.m. 7:30 p.m.
(for families) (for families) (for adults)

Name _____

Address: _____

City: _____

State _____

Zip _____

Daytime Phone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Ghosts, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. All ticket orders received by Sept. 20 will be treated on an equal basis. After that date, please call (212) 873-1327 for ticket availability.

Bat Facts

Tuesday, October 30, 7:30 p.m.
Main Auditorium
\$2.50 for Members, \$5.00 for non-members



True to its appearance, this bat is called the flying fox.

Bat Facts. Tuesday, October 30, 7:30 p.m. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$2.50. Associates are entitled to one. All other tickets are \$5.00.

Number of Members' tickets	X \$2.50 \$
Number of non-members' tickets	X \$5.00 \$
Total amount enclosed:	\$

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to Bats, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024. Mail registration closes October 20. After that date please call (212) 873-1327 for ticket availability.

Does the creature you see to the left look like it deserves to be associated with witches, vampires, dead souls and ghoulish goings on? On the night before Halloween, Members are invited to cast bat stereotypes to the wind and learn about this glorious creature of the night.

Using beautiful slides which he has shot and collected over several decades of studying bats, Dr. Merlin Tuttle, a zoologist at the Milwaukee Public Museum, will introduce you to the bats of South America, Asia, Africa, and North America.

Members will see fruit and nectar bats whose existence is vital to the world's rain forests, because they disperse seeds and pollinate flowers. You will meet a frog-eating bat which identifies frogs by their calls, and a bat which is responsible for the continued existence of the African continent's famous baobab tree.

What is life without love? Members will watch a bat courtship ritual, as a male bat entices a female by flashing the lovely hidden fur of his shoulder epaulette, and fills his cheek pouches with air to enhance the quality of his mating call.

Dr. Tuttle, president of "Bat Conservation International," has written for *National Geographic* and *Smithsonian* magazines. He will share with Members his knowledge and admiration for these animals, and stress the need for their conservation.

To register for Bat Facts please use the adjacent coupon

ROTUNDA

ISSN 0194-6110

Vol. 9, No. 7
September 1984

Henry H. Schulson — Manager of Membership Services
Ruth Q. Leibowitz — Editor
Barbara E. Sawicz — Assistant Editor
Angela Soccadato — Designer
Susan Meigs — Copy Editor
Kim Hamilton — Editorial Assistant
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Alan Temes — Editorial Advisor

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The Museum receives substantial support from a number of major sources. We are particularly grateful to the City of New York which owns the Museum buildings and provides funds for their operation and maintenance, and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 300 corporations, 60 private foundations, 460,000 members, and numerous individual contributors 341

Printed by Waldon Press, Inc., New York.



Merlin Tuttle records these frog-eating bats as they approach their food.

The Department of Education presents the Fall Afternoon and Evening Lecture Series



Artwork on pages 4, 5 and 16 from 'Hooded Mammals of the World,' Ugo Mochi and T. Donald Carter, Charles Scribner's Sons, 1953

GREAT PARKS OF THE WORLD

in cooperation with the World Wildlife Fund-U.S.

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Fee \$12 (\$10.80 for Members)

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in conjunction with the upcoming exhibition **Ban Chiang**.

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Dec. 3 HOW WE GOT TO BE THE WAY WE ARE: The origin and evolution of humanity. How we developed as highly malleable creatures oriented in the direction of cooperation. How and when changes came about which led to highly competitive societies in which the victor ends up by belonging to the spoils, possessed by his possessions.
Dec. 10 WHAT WE CAN BECOME: As a result of humanity's unique evolutionary history, we are designed to grow and develop as highly cooperative creatures, with an inbuilt system of drives (not instincts). We are designed to grow and develop in all these potentialities which children so abundantly exhibit: the qualities of love, friendship, curiosity, creativity, compassionate intelligence and many others. It is by understanding and nourishing those qualities that we will once again be able to fulfill our potentialities as human beings.

MAMMALS OF NORTH AMERICA

Six Monday afternoons starting October 29
2:30-4:00 p.m.
or
Six Monday evenings starting October 29
7:00-8:30 p.m.
Fee: \$35.00 (\$31.50 for Members)

In spite of the overexploitation of its wildlife, North America still offers an exciting abundance of wild animals. Swamps and marshes, deserts, mountain ranges, forests, plains and seacoasts all provide homes for a fascinating assortment of mammals. In addition to slide-illustrated lectures, a visit is made to two of the Museum's magnificent exhibition halls, where mammals are seen in their natural surroundings. **Kenneth A. Chambers** is Lecturer in Zoology at the Museum and the author of *A Country Lover's Guide to Wildlife*.
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or
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7:00-8:30 p.m.
Fee: \$35 (\$31.50 for Members)

"Eye of newt and toe of frog, wool of bat and tongue of dog. Cool it with a baboon's blood, then the charm is firm and good." Witchcraft, like religion, deals with controlling problems through complex beliefs and rituals. What are the similarities and the differences in magic and witchcraft from society

to society? In what social contexts is witchcraft used? **Paul J. Sanfacon** is Lecturer in Anthropology at the Museum.

Oct. 29 DOCTORS OR WITCHDOCTORS: Legitimate and illegitimate uses of power.
Nov. 5 POLITICS AND ECONOMICS OF WITCHCRAFT: The African variant — ancestral ghosts are interested in the affairs of the living.
Nov. 19 WITCHES, GOD AND THE DEVIL: The European variant — the pious lusts of social reform.
Nov. 26 EXORCISTS, INCANTATIONS AND PREACHERS: Aspects of Voodoo and other possession cults.
Dec. 3 THE SALEM WITCH TRIALS: An American variant.
Dec. 10 CONCLUSIONS: What is it that is working and that works?

MUSHROOMS, MOSSES, FERNS AND OTHER NON-FLOWERING PLANTS

Five Tuesday evenings starting October 30
2:30-4:00 p.m.
or
Five Thursday evenings starting November 1
7:00-8:30 p.m.
Fee: \$30 (\$27 for Members)

Giant conifers and kelps, tiny mosses, and filamentous seaweeds — altogether about a third of all plants reproduce without ever bearing flowers. Included are some of the choicest edible plants, as well as some of the deadliest. These slide-illustrated lectures by **Helmut Schiller**, Lecturer in Botany at the Museum, introduce diverse plants: the mushrooms, mosses and ferns of the forest floors and meadows; lichens of rocky and sandy places; algae at the edge of the sea; and conifers. Identification and ecology of northeastern U.S. species is stressed.
1. THE NON-FLOWERING PLANTS: basic structure and relationships
2. SEAWEEDS: the larger algae
3. MUSHROOMS: the fungus kingdom
4. LICHENS, MOSSES, FERNS AND RELATIVES
5. GYMNOSPERMS: conifers and relatives

GEMS AND THE EARTH

Seven Tuesday evenings starting October 30
7:00-8:30 p.m.
Fee: \$42.00 (\$37.80 for Members)

Members of the Museum's Department of Mineral Sciences discuss gems, their origins and characteristics, cultural history, aesthetic and scientific values. This is not a course in gem identification or recognition. It is intended to enhance gem appreciation and understanding. The lectures are presented by **Dr. George E. Harlow**, Associate Curator, **Dr. Martin Prinz**, Chairman and Curator, and **Joseph J. Peters**, Senior Scientific Assistant.
Oct. 30 WHAT IS A GEM? (Dr. Harlow). An introduction to gemology, definitions of minerals and gems, their properties, terminology problems, misuse of gem terms, synthetic gems, gem recognition, appraisals, etc.
Nov. 13 DIAMONDS AND PERIDOT: GEMS FROM THE EARTH'S DEPTHS (Dr. Prinz). Diamonds: exploration and cultural history, properties, synthetics, famous stones. Peridot and its geological significance.
Nov. 20 RUBIES, SAPPHIRES AND SPINELS (Dr. Harlow).
Nov. 27 EMERALDS AND OTHER GEM BERYLS (Mr. Peters).
Dec. 4 TOURMALINES AND GEM PEGMATITES (Mr. Peters). Mainly on tourmalines from southern California and gem pegmatites of Afghanistan and other localities.
Dec. 11 GARNET, TOPAZ, CHRYSOBERYL AND OTHER COLORED STONES (Mr. Peters).
Dec. 18 JADES (Dr. Harlow). Origin and characteristics of different kinds of jades, their cultural history and carvings, and important geologic implications.

THE WORLD OF BIRDS

Five Thursday evenings starting November 1
7:00-8:30 p.m.
Fee: \$30.00 (\$27.00 for Members)

Focusing on evolution and adaptations of birds, special emphasis is given to avian biology directly relating to flight. Topics include evolution from reptiles, feathers and molt, migration and behavior. **Jay Pitocchelli**, graduate researcher in the Department of Ornithology, utilizes slides, films and tape recordings, and Museum exhibits and collections. Course includes a behind-the-scenes tour of the Ornithology Department.

Nov. 1 EVOLUTION OF BIRDS.

Nov. 8 MIGRATION AND ORIENTATION.

Nov. 15 BIRDSONG, FUNCTION AND PRODUCTION.

Nov. 29 BEHAVIOR.

Dec. 6 BIRD ARCHITECTURE.

THE ASMAT: ART AND CULTURE IN A PRELITERATE SOCIETY

Four Thursday evenings starting November 1
7:00-8:30 p.m.
Fee: \$25 (\$22.50 for Members)

Dr. Tobias Schneebaum, Director of Research and Documentation at the Asmat Museum of Culture and Progress and co-author of the book *Asmat: Life with the Ancestors*, discusses the Asmat, a group of people living in the south of Irian Jaya, Indonesia. Until recently, the Asmat were headhunters and cannibals, and were known to have been one of the fiercest tribes on the island. Their life was, and to some extent still is based on ancestor worship. This partly manifested itself in ritual carvings for feasts that culminated in headhunting raids to avenge the deaths of those recently killed. The extraordinary power of Asmat carvings has made them world famous.

Nov. 1 DAILY LIFE

Nov. 8 WIFE EXCHANGE AND SEXUAL ACTIVITY

Nov. 15 RITUAL AND OTHER CARVING

Nov. 29 WAR AND HEADHUNTING

ANTHROPOLOGY FILM MATINEE

Three Thursday afternoons starting November 1
2:30-4:30 p.m.
Fee: \$18.00 (\$16.20 for Members)

Dr. Malcolm Arth, anthropologist and an organizer of the Museum's annual Margaret Mead Film Festival, has selected four works from the 1984 Festival to reprise for an afternoon audience. Each looks at different aspects of American culture. They examine communities ranging from a small town in northern Idaho to a vibrant midtown New York neighborhood. They present issues as varied as the lives of elderly homosexuals and the brevity of life itself. Dr. Arth leads a discussion of each film.

Nov. 1 HELL'S KITCHEN CHRONICLE. 1984. 60 mins. Maren and Reed Erskine, Directors. Celebrating one of Manhattan's most colorful neighborhoods.

SILENT PIONEERS. 1980. 30 mins. Lucy Winer, Director. Elderly gay men and women talk about their lives.

Nov. 8 SILVER VALLEY. 1983. 45 mins. A film by Michel Negropte, Peggy Stern and Mark Erder. A family adjusts to the shutdown of a town's only industry.

NISEI SOLDIER. 1984. 30 mins. Loni Ding, Director. The ordeal of Japanese-American citizens during World War II.

Nov. 15 DEATH AND THE SINGING TELEGRAM. 1983. 111 mins. Mark Rance, Director. A family faces issues of love and separation over a five-year span.

ETHNOBOTANY OF NORTH AMERICAN INDIANS

Six Monday evenings starting October 29
7:00-8:30 p.m.
Fee: \$35 (\$31.50 for Members)

E. Barrie Kavasch, author of *Native Harvests*, explores the diverse uses by American Indians of the floral environments of North America. Concentrating on the Eastern Woodland Indians, the series is richly illustrated with color slides, ethnographic objects and ethnobotanical specimens.

Oct. 29 EARLY GATHERING CULTURES developed broad, detailed knowledge of seasonal plant resources. Participants will explore the cycle of the

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Four Tuesdays
7:00-8:30 p.m.
Fee: \$28

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ANIMATION

Eight Tuesdays
7:00 to 8:00 p.m.
Fee: \$80
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GEOLOGY AND METEOROLOGY

Six Tuesdays
7:00-8:00 p.m.
Fee: \$35

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Oct. 30

Asante: Kingdom of Gold

Exhibition opens October 18 in Gallery 3

Special Members' Preview: Saturday, October 13



This cast bronze weight depicts a mounted warrior. The Asante used it as a counterweight to measure gold dust.

Museum Members are invited to a preview of the new exhibition *Asante, Kingdom of Gold*, before it opens to the general public. As you stroll through the exhibition, constructed around a royal courtyard theme, you will see more than 800 cultural and economic artifacts of the Asante, and become immersed in a kingdom which once dominated precolonial west Africa, then a regional world leader in gold production. The exhibit includes everything from gold weapons and bronze weights to wooden sculpture, elaborate woven textiles, and brightly colored umbrellas designed to help keep Asante kings in spiritual equilibrium.

For two hundred years prior to the British conquest in 1896, the Asante regulated and taxed the lucrative trade which linked the Mediterranean, the Sahara, and the Atlantic Coast of West Africa. They controlled the gold mining industry and the distribution of gold dust, which was used as currency. In the capital of Kumase, the Asantehene (king) and his retinue lived in splendor, surrounded by superbly crafted gold jewelry and weapons, magnificent woven textiles,

and wooden sculpture covered with sheet gold, much of which is on display.

Accompanying the objects are historic photographs documenting the conquest of the Asante by the British and the resurrection of the Asante confederacy in modern times.

Many of the objects you will see are associated with proverbs; others have spiritual significance. All in some way

reflect the complex hierarchical nature of Asante society.

The exhibition, which closes on March 17, 1985, comes from the Museum of Mankind, (the Ethnology Department of the British Museum) which contains the largest collection of Asante artifacts outside Ghana.

Members can register for the Members' Preview by using the coupon below

Members' Preview for Asante: Kingdom of Gold.

Saturday, October 13 This program is open only to Participating, Donor and Contributing Members.
Please indicate a first and second choice of times

10:00 a.m.-12:00 p.m.
12:00-2:00 p.m.
2:00-4:00 p.m.
4:00-6:00 p.m. Number of people

Name: _____

Address: _____

City: _____

State: _____

Zip _____

Daytime Phone: _____

Membership category _____

Please mail with a self-addressed, stamped envelope to Asante, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

The exhibit was made possible by a major grant from the N.E.H.

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Artwork on pages 4, 5 and 16 from "Hunted Mammals of the World," Ugo Moench and T. Donald Carter, Charles Scribner's Sons, 1953

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or

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Happenings at the Hayden

Please note that the Planetarium will be closed September 4 through September 14 for maintenance. There will be no sky or laser shows during this time period.

Sky Shows

Star Quest, September 1 through September 3, and September 15 through November 18. Come take a look at past, present and future conquests of space from the earliest rockets to tomorrow's planetary outposts and flights to the stars. Leonard Nimoy of *Star Trek* fame narrated the sound track. *Star Quest* will be shown weekdays at 1:30 and 3:30 p.m. and weekend days, 1:00 to 4:00 on the hour.

Sky Show admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member prices please call (212) 873-8828.

Admission to the Planetarium includes two floors of astronomical exhibitions.

Laser Zeppelin and Laser Floyd

Laser visuals and the music of Led Zeppelin combine to create a unique and dazzling experience of sight and sound, Friday and Saturday at 7:30 and 10:30 p.m.

The music of Pink Floyd will be featured on Friday and Saturday evenings at 9:00 p.m. in our new *Laser Floyd* show.

Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information about the laser shows, call (212) 724-8700.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

When in doubt, call before coming. All prices and show times are subject to change without notice.

WEEKEND FIELD TRIPS

WEEKEND FOR BIRD ENTHUSIASTS

May 4 and 5, 1985

Limited to 36 adults

Two-day bus trip covering a wooded area near New York City, and daytime and evening visits to a lake and bog area in the Pine Barrens of New Jersey. The group is accommodated overnight near Toms River. The tour continues to Brigantine National Wildlife Refuge, where many marsh birds as well as woodland species can be seen. **Kenneth A. Chambers**, Lecturer in Zoology at the Museum, leads this field study tour.

WEEKEND IN GEOLOGY

May 18 and 19, 1985

Limited to 36 adults

Two-day bus trip to survey geology between the Appalachian Plateau in northern Pennsylvania and the Coastal Plain of northern New Jersey. Along the Coastal Plain there are visits to Sandy Hook and the Highlands of the Navesink. Collecting stops are made enroute. The group is accommodated overnight near Parsippany. **Dr. George Harlow**, Associate Curator, Department of Mineral Sciences at the Museum, leads this field study tour.

For Weekend Field Trip itinerary and application, call the Department of Education at (212) 873-7507.

Portrait of Teresa

Sunday, September 9, 2:00 p.m.
Kaufmann Theater. Free.

Teresa is up before dawn to do her housework and get her husband and children ready for the day. Then she's off to a full-time job at the textile factory, helping to make ends meet for her family. After work, she spends several hours directing a dance group that is preparing for a national competition. When her husband Ramon complains that she is neglecting her "sacred duties" as wife and mother by spending so much time with the dance group, Teresa rebels. Her struggle to retain for herself a "life as a human being" is the central theme of Pastor Vega's widely acclaimed film, *Portrait of Teresa*, which caused a storm of controversy when it was released in Cuba four years ago.

Teresa must cope with the cultural pressures facing Cuban women in particular. She also laces the universal

dilemma of the working wife and mother, trying to balance her life within a traditional, outmoded family structure.

Portrait of Teresa will be introduced by Judith C. White, Director of Public Education for the Postgraduate Center for Mental Health in New York. Following the screening, Ms. White will moderate a discussion on stress caused by changing roles in male-female relationships in contemporary society. Participants in the discussion will be Carmen Pelaez, Psy.D., Associate Staff Member, and Joao Nunes, M.D., Faculty, of the Postgraduate Center for Mental Health.

This free program is cosponsored by the Caribbean Program of the Museum's Department of Education and the Postgraduate Center for Mental Health. For further information, please call (212) 873-1300, ext. 514.

Beauty and the Bronx

Saturday, September 29
11:00 a.m., 2:00 and 4:00 p.m.
\$5.00 and open only to Members

Explore the natural beauty of Bronx's Green Belt with Sidney Horenstein this autumn, as you learn about the geology and plant life of one of New York City's most interesting areas.

At the base of the Riverdale Bridge, Members will learn about the ecology of a freshwater lake led by springs. You will then climb a hill to the top of the bridge, where panoramic views of the Hudson and Harlem Rivers await you. You'll learn about the origins of both rivers, as well as why neither of them is really a river!

The Bronx boasts the oldest

rocks in the city. Mr. Horenstein will point out how geology determines the topography of Riverdale and adjacent areas, and Members will learn to detect the tell-tale signs of glacial activity.

The tour will begin in the parking lot of the Spuyten Duyvil train station, accessible by Conrail and by car. Those who register for the tour will receive more detailed traveling directions with their tickets. For those of you wondering what "Spuyten Duyvil" means, you may have to wait until your tour to find out. To register, please use the coupon below.

Beauty and The Bronx. Saturday, September 29.

Please indicate first and second choice of times.

_____ 11:00 a.m.
_____ 2:00 p.m.
_____ 4:00 p.m.

Number of People: _____

I have enclosed my check for \$_____ (\$5 per person; groups greater than 4 must call for availability)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to *Beauty and The Bronx*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. **Registration closes September 15.** Call (212) 873-1327 for ticket availability after this date.

Asante: Kingdom of Gold

Exhibition opens October 18 in Gallery 3
Special Members' Preview: Saturday, October 13



This cast bronze weight depicts a mounted warrior. The Asante used it as a counterweight to measure gold dust.

Museum Members are invited to a preview of the new exhibition *Asante, Kingdom of Gold*, before it opens to the general public. As you stroll through the exhibition, constructed around a royal courtyard theme, you will see more than 800 cultural and economic artifacts of the Asante, and become immersed in a kingdom which once dominated precolonial west Africa, then a regional world leader in gold production. The exhibit includes everything from gold weapons and bronze weights to wooden sculpture, elaborate woven textiles, and brightly colored umbrellas designed to help keep Asante kings in spiritual equilibrium.

For two hundred years prior to the British conquest in 1896, the Asante regulated and taxed the lucrative trade which linked the Mediterranean, the Sahara, and the Atlantic Coast of West Africa. They controlled the gold mining industry and the distribution of gold dust, which was used as currency. In the capital of Kumase, the Asantehene (king) and his retinue lived in splendor, surrounded by superbly crafted gold jewelry and weapons, magnificent woven textiles,

and wooden sculpture covered with sheet gold, much of which is on display.

Accompanying the objects are historic photographs documenting the conquest of the Asante by the British and the resurrection of the Asante confederacy in modern times.

Many of the objects you will see are associated with proverbs: others have spiritual significance. All in some way

reflect the complex hierarchical nature of Asante society.

The exhibition, which closes on March 17, 1985, comes from the Museum of Mankind, (the Ethnology Department of the British Museum) which contains the largest collection of Asante artifacts outside Ghana.

Members can register for the Members' Preview by using the coupon below.

Members' Preview for Asante: Kingdom of Gold. Saturday, October 13. This program is open only to Participating, Donor and Contributing Members. Please indicate a first and second choice of times

_____ 10:00 a.m.-12:00 p.m.
_____ 12:00-2:00 p.m.
_____ 2:00-4:00 p.m.
_____ 4:00-6:00 p.m.

Number of people _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *Asante*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

The exhibit was made possible by a major grant from the NEH

Our Lost Relations

A fantasy: *Homo sapiens neanderthalensis* and *Homo sapiens sapiens* have coexisted for thousands of years. At the Members' Preview of the exhibition *Ancestors: Four Million Years of Humanity*, Neanderthal and Sapiens Museum Members stand side by side to peer with curiosity at fossils of their hominid relatives. The preview is followed by seminars on human ancestry and a party to celebrate Neanderthal-Sapiens coexistence.

But, say many Museum Members, an evening such as this is all too rare. Indeed, recently differences among Neanderthals and Sapiens flared up anew after a Sapiens news commentator described the performers of the Ballet Neanderthalensis as "clumsy and lumbering" in a new version of "Swan Lake." One Neanderthal responded "The truth is that *Homo sapiens sapiens* dancers are pathetic, gawky and ostrich-like in their movements. We watch their performances only when in need of comic relief."

At a time when the American Civil Liberties Union is handling an all-time high of subspecies discrimination suits, it is comforting to read magazines such as *Interspecies*, which provides a forum for Sapiens and Neanderthals who have developed close friendships and work relationships with members of the "opposite" subspecies. In one recent interspecies interview, Jill Anderson, a Sapiens writer, says of her adopted Neanderthal sister:

"When I look at Canka I feel as if I'm gazing at my own reflection on the surface of a lake. Yet the image I see is of my inner, not my outer self. . ."

Canka Anderson, a renowned harpist with the Northern Neanderthal String Ensemble, can be heard at Carnegie Hall this winter, performing her "Steppe Sonata," a musical tribute to the windy European steppes of the late Pleistocene epoch

If the Neanderthals were still alive today, it might be wonderful to share the earth with relatives as large-brained as ourselves. Or, the problems between subspecies might be far worse than the problems we now have among people of different cultures — leading to constant warring and possibly to mutual annihilation in the present nuclear age.

We will never know. The Neanderthals are gone. Once dwelling in Europe, the Near East and parts of northern Africa, *Homo sapiens neanderthalensis* are known from the fossil record beginning about 150,000 years ago. They disappeared from the record, and probably from the earth, about 32,000 years ago, replaced by people of modern type, *Homo sapiens sapiens* — ourselves. No living person knows why or how, although theories abound.

What happened when our own subspecies met the Neanderthals? Did our worst characteristics — the same ones that allow people today to destroy other animals (including humans) and their habitats — come into play, leading to the violent destruction of Neanderthal people and culture? Did a virus — one which most *Homo sapiens sapiens* were immune to but most Neanderthals succumbed to — sweep them away? Was there interbreeding between the two subspecies, and if so was this the result of cultural understanding or rape in the ravages of war? Did the Neanderthals have a language as complex as ours? Did we share stories?

Since the Neanderthals are not here to speak for themselves, we must make what we can of the bones, tools, and other important remains they have left behind — many of which can be viewed in the exhibition *Ancestors: Four Million Years of Humanity*.

What follows are some things we know, some we think we know, and many we wish we knew.

The Neanderthal World

Neanderthals probably originated in Europe during a cold glacial phase of the Pleistocene epoch, approximately 150,000 years ago, and later spread to other areas of the globe. Their time on earth spanned the end of one glacial cold phase, an interglacial interval (marked by the retreat of glaciers and a much milder climate), and a second lengthy cold phase. It was during this second cold phase (the most recent glaciation) that the classic Neanderthal dwelled in Europe.



La Ferrassie 1

The world of the classic Neanderthal was a cold one. Approximately 90,000 years ago saw the first advance of the Würm Glacier, which covered most of Northern Europe. For several hundred miles south of this frozen area, the wind was cold and plant life sparse or non-existent. Further south in central France and other areas of similar latitudes, the open tundra prevailed, according to some scientists. Others think the ground was not frozen year-round as a tundra is, but was rather a cold steppe which could support varied vegetation.

Reindeer, mammoth, and other arctic animals grazed and moved seasonally from place to place. They were followed by the Neanderthals who hunted them, cooked their meat on hearths, and used their skins for warmth against the constant cold.

Physical Characteristics

When you visit the *Ancestors* exhibit, stop to take a look at the Neanderthal skull from La Ferrassie, France (shown above). It is a classic Neanderthal cranium. You might want to compare the La Ferrassie skull to that from the Border Cave of Ingwavuma in South Africa — the earliest well-preserved specimen of our own subspecies.

La Ferrassie's face is large compared with ours. His brow ridges protrude and are continuous across his frontal bones. His skull is larger and thicker than a modern person's, and his face projects forward from his forehead.

The average volume of a Neanderthal adult's braincase is approximately 1450 cubic centimeters, slightly larger than ours. Does this mean that Neanderthals were as, or even more, "intelligent" than we are? Since we have only the skulls and not the brains nor the people themselves to tell us, we will never know.

La Ferrassie's eye sockets are almost circular in shape and his nasal cavities are far apart. Neanderthal noses were probably somewhat wider than that of the Australian Aborigines, the widest-nosed people living today.

La Ferrassie's teeth are significantly larger than ours. Neanderthal teeth are characterized by their enlarged pulp cavities, a condition known as *taurodontism* (not something you would notice in looking at La Ferrassie, since these pulp cavities are inside the teeth). There is an easily discernible gap between his molars and the ramus of his lower jaw (our jaws are shaped like a short letter "L". The vertical line of the "L" is the ramus).

If you were to take your own jaw out and glance at it, you would not find such a gap: our laces, jaws included, are so short from front to back, that the third molars are hidden by the ramus. One bothersome outcome of this more "modern" arrangement is that we often don't have enough space in our mouths for our wisdom teeth to sprout up.

Several nearly complete Neanderthal skeletons (La Ferrassie's being one of the most complete to

date) have been found, although they are not contained in the exhibition. From them, we know that the classic Neanderthals were stoutly and powerfully built. Judging by marks on areas of bone where muscle and bone connected, both men and women were heavily muscled. European Neanderthal men reached a height of just above live-foot-six. Women were a few inches shorter.

The square, sturdy build of these Ice Age men and women was probably advantageous in their cold climate. A low surface-to-mass ratio may have reduced the loss of body heat through radiation. (Witness the stocky body builds of modern peoples such as the Inuit of Alaska, who must cope with severe conditions of cold.) The protruding brows may have served a protective function as well.

Near Eastern Neanderthal populations show a taller, more linear body build. This may be due to the warmer, less extreme conditions under which they developed. (The Israeli Amud, whose skull was featured on the April cover of *Rotunda*, was from such a population.)

Also exhibiting lower "extreme" characteristics than the classic Neanderthals were those who lived prior to the most recent glaciation. Here it is worth taking another glance at our old friend, La Ferrassie.

He lived approximately 50,000 years ago — a true classic Neanderthal. Two skulls to his right is an adult female from Saccopastore, Italy, who lived about 50,000 years earlier. The lines and angles of her face appear much milder. This is partly because she is female. But it may also be largely because La Ferrassie's near ancestors had already adapted to a cold glacial phase which had not yet appeared when the woman from Saccopastore and her contemporaries were born.

Between the Saccopastore and the La Ferrassie skulls is that of a Neanderthal from Krapina, Yugoslavia, approximately the same age as the Saccopastore material. Again, the facial features appear less exaggerated than those of La Ferrassie.

The physical variation among Neanderthals is no greater than the variation among anatomically modern people. What of the differences between Neanderthals and ourselves?

Eric Delson, co-curator of the *Ancestors* exhibition, voices the majority opinion that while differences between Neanderthals and ourselves are not great enough to merit a separate species, they are certainly great enough to place us in a separate subspecies. Dr. Delson sees no reason why Neanderthals and *sapiens sapiens* couldn't have interbred and believes that up to 10% of some modern Europeans' genes may be derived from Neanderthal populations.

Closely related species of monkeys such as baboons and macaques have been known to interbreed in captivity, producing fertile offspring. So have lions and tigers. Yet they don't do it in the wild, due to behavioral, geographical and other barriers. Such barriers may or may not have been sufficient to prevent interbreeding between ourselves and Neanderthals.

We now know that Neanderthals and *sapiens sapiens* overlapped in time and place. A partial face and braincase (included in the exhibition) were recently found in a cave in St. Césaire France. Dated at about 32,000 before present, the material is definitely of Neanderthal stock. Yet, it was found with tools usually presumed to be associated with Cro Magnon (European modern) people, who occupied France at about the same time. Were the makers of the tools moderns or Neanderthals? St. Césaire is, so far, the only find in which tools of this type have been found associated with any actual skeletons!

There are other perplexing finds — like the group from the Mughareh-Skhul cave in Mt. Carmel, Israel (represented in the exhibition by one skull). The Skhul material is dated at about 35,000 years before present. Classified as *sapiens sapiens* by many (including the exhibition's curators), the skull on exhibit has thin but quite prominent brow ridges, as well as a projecting face — features which are similar to those of Neanderthal, yet unique. For instance, while Neanderthal brow ridges were prominent, they were by no means thin. The tools found along with the Skhul skull resemble those made by earlier Neanderthals. Could Skhul represent a transitional group?

Neanderthal Culture

Following the discovery in 1856 (three years before *Origin of the Species* was printed), of the "original Neanderthal" (on exhibit) in the Neander Valley near Dusseldorf, Germany, this close relative of ours was called everything from a microcephalic idiot and a pathological specimen suffering from gout in its old age to a Cossack from the war of 1814!

Based largely on a later Neanderthal discovery at the site of La Chapelle-aux-Saints, France, a well-respected anthropologist named Marcellin Boule described Neanderthals as slouching, apelike brutes. Boule was one of the leading scientists of the day, and his opinions prevailed.

We now know that Boule's early 20th century assumptions about Neanderthals were based on the atypical skeleton of a relatively old man who was deformed by arthritis. Nevertheless, the stereotype of the stooped, hairy caveman grunting and pouting moodily by his cave entrance has survived even to the present day.

Neanderthal people were skilled hunters, who used tools of stone, bone, and probably wood as well. Their antecedents (*Homo erectus*) had a tool industry known as the Acheulian. The Acheulian tool industry emphasized modification of a core stone which was shaped and sharpened to be of use in hunting or food preparation. While small flakes as well as cores have been found associated with the Acheulian industry, these flakes do not have the planned and patterned appearance of the tool complexes which followed.

Neanderthals improved upon the Acheulian state of affairs by creating an industry known as the Mousterian, in which the emphasis was placed on flake rather than core tools.

To translate this into everyday language — let's say you, a Neanderthal man or woman, want a sharp blade which will help you cut animal hide. Instead of merely taking a rock and chipping away part of it to make it slightly sharper (which an Acheulian craftsman would probably have done) you look at it for a long time, turning it around in your hands. You decide how to shape it so that one or several blows against it will give you a flake with a very sharp edge. You make your decision, shape your core accordingly, and then knock off one or several flakes. The flakes, and not the core, are the tools.

This kind of toolmaking requires a great deal more forethought, and produces more precise tools than its predecessor industry. Examples of both Acheulian and Mousterian tools are on exhibit, including choppers, scrapers, and handaxes. Judge for yourself if the Mousterian tools seem far more finely crafted.

Evidence for the Neanderthals' hunting prowess has come from many sites. Bones of deer, lynx, mammoth, bison, cave bears, and many other animals have been found in caves where Neanderthals lived. There is even evidence of a possible cave bear ritual at the site of Regourdou in southern France, where bear skulls were found in a stone-lined rectangular pit which was covered by a flat stone weighing a ton. When you realize that the cave bears Neanderthals had to contend with were

as large as today's Alaskan brown bears (up to $\frac{3}{4}$ of a ton in weight and up to ten feet in height) it is quite conceivable that these Stone Age humans were in awe of the beasts.

Like many of today's hunters and gatherers, Neanderthals probably followed the seasonal movement of game. They used caves for shelter, modifying them for comfort. Partially filled postholes have been found at the entrances of some caves. The people who dug the holes may have used a sapling framework strung with hide to cover their cave entrances, protecting them from wind and cold. Some areas show evidence that seaweed and animal skins were used as beds. Neanderthals also camped in open-air sites and may have used skin tents.

Fossil hearths and charred bones at many sites attest to Neanderthal's knowledge of fire. (Indeed, *Homo erectus* had already used fire hundreds of thousands of years earlier — more than a million years ago.)

A few sites, such as the hearth in Krapina, Yugoslavia, contain charred human as well as animal bones. At Monte Circeo, Italy, a skull was found with its base opened for removal of the brain. These and other finds point to possible cannibalism.

If Neanderthals did occasionally eat others of their kind, does this mean they were "heartless" by modern standards? Any thorough anthropological survey will attest to the cannibalism members of our own subspecies have practiced, either as a ritual activity or as a last resort in times of starvation.

That some kind of "spiritual" awareness or belief in an afterlife was part of Neanderthal life is clearly shown in many of the burial sites. One child at Teshik-Tash in Russia was buried beneath the horns of four great mountain goats, or ibexes (on display in the Hall of Asian People). At other locations Neanderthals were buried along with grave goods such as tools, food, and other (probably used for coloring the body).



A beautiful painting depicts an outdated image.

The most famous burial site of all is the Shanidar cave, high in the Zagros Mountains of Iraq. This cave contained the skeletons of several individuals, believed to be about 60,000 years old. One was that of an adult male (Shanidar IV). When the soil surrounding this man was analyzed, it was found to be rich in the flower pollen of many species — so rich, it is almost inconceivable that the flowers were not collected and put there. Someone long ago had placed a bundle of grape hyacinth, hollyhock, yarrow, and other flowers upon this mountain grave. Seven of the eight flower species identified are known in Iraq for their medicinal and herbal properties.¹

Among the other fossils found at Shanidar was the skeleton of a crippled male who had died at about 40 years of age (Shanidar I). His right arm, shoulder and collarbone had never fully developed. His right arm had been amputated below the elbow some time before his death — a serious operation.

Certainly Shanidar I could not have been of much help to his people as a hunter, basketmaker or builder. Alone he would have perished in that windy place. Someone took care of him.

Perhaps he knew many good stories, had a beautiful voice, or was an accomplished healer or visionary. Perhaps he had no special gifts at all: it was simply the way of his people to take care of one another.

Did Neanderthals speak? Given their brain size, social organization and need for cooperation, the answer is probably yes. Some anthropologists theorize, based on the probable structure of their throats, that if Neanderthals did speak their speech was limited to certain vowels, and thus they could not communicate as well as we can.

The following letter, written by "Jehn H. Fremien of the Department of Phesecs, Eneversete of Bermenghem, Englend," (see Sources) responds to this possibility with gret elekence.

The Demese of the Ne'enderthels: Wes Lengege e Fecter?

Et seems qwete prebeble thet the Ne'enderthels ked speke less well then ther seccessers, end thet thes wes the resen fer ther demese. Bet even ef we beleve the kempeter reselts (Research News, 15 Nov. 1974, p. 618), et seems emprebeble thet ther speech wes enedeqwete bekes ef the leck ef the three vewels seggested. The kemplexete ef speech depends en the kensenents, net en the vewels, es ken be seen from the general kemprehensebelete ef thes letter.²

Ancestors and Descendants

"Where I come from nobody knows;
And where I'm going, everything goes.
The wind blows, the sea flows —
and nobody knows."³

It is easier to say where the Neanderthals came from than it is to say where they went. Archaic *Homo sapiens* who appear to have been transitional between *Homo erectus* and *Homo sapiens Neanderthalensis* are represented by several of the samples on exhibit. The Steinheim skull from Germany and possibly the Arago skull from France (both on display) are two of them.

But where did Neanderthal go? Your guess is as good as anyone's. We need to find more specimens. We need to understand the meaning of the Skhul and the St. Césaire finds, as well as many others which have raised puzzling questions.

And while we're wondering where Neanderthal went, we might as well also ask "Where did we come from?" So far the evidence points to the African continent, where the oldest known completely modern people (on display) have been unearthed and dated at about 90,000 years before present.

There are a few finds, such as the Florisbad material (on display) which may show a transition from archaic to modern *Homo sapiens sapiens*. Scientists are by no means unanimous in this placement.

If, as some believe, evolution moves slowly and steadily like the proverbial turtle, material which is clearly transitional in nature may yet be found. If, as scientists like Ian Tattersall and Niles Eldredge have postulated in their book *Myths of Human Evolution*, evolution is often a question of leaps and bounds, perhaps the transition happened too suddenly to be found in the fossil record.

We may never know. La Ferrassie, Amud, the skull from Border Cave — their eye sockets are empty, their jaws motionless. They see nothing and say nothing, no matter how much we wish it were otherwise.

— Ruth Q. Leibowitz

Note to Members: The Ancestors exhibition, containing many Neanderthal remains and other important hominid fossils, closes September 9.

¹ For those who wish further information, see *Science News*, 108 (listed below).

² Reprinted by permission *Science*, 187 (listed below).

³ Nathan, Robert. *Portrait of Jennie*.

Sources

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Eldredge, Niles and Tattersall, Ian. *The Myths of Human Evolution*. New York, Columbia University Press. 1982.
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Articles:

- "Shanidar: the Cave with Soul." *Science News*, 108 (1975), 343.
Solecki, Ralph S. "Shanidar IV, a Neanderthal Flower Burial in Northern Iraq." *Science*, 190 (1975), 880-881.
Kolata, G.B. "Demise of the Neanderthals. Was Language a Factor?" *Science*, 187 (1975), 600.
"Jehn H. Fremien" (letter). *Science* (same as above).
Trinkaus, E. and Howells, W.W. "The Neanderthals." *Sci. Am.*, 241 (1979), 118-19.
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Restoration of a Neanderthal/J.H. McGregor

Workshops for Young People



Course Series

Parent/Child Science Explorations

Kindergarten youngster with one parent
Six Saturdays: October 13, 20, 27, and November 3, 10, 17
3:00-4:30 p.m.
Fee: \$60 (\$55 for Members)
Limited to ten youngsters and ten parents.

Introductory science classes based on an interactive approach that includes guided group discussion, hands-on activities, and games. Beginning with their own bodies, children compare bones of animals, hair, teeth, and claws. Using Museum exhibits and guide sheets, parents and children together discover animals in their natural habitats. Activities are designed to help develop a scientific approach to exploration based on the child's natural curiosity. An essential part of the course is parent involvement. Taught by Susan Bromberg Kleinsinger, early childhood specialist.

Parent/Child Science Explorations

Four-year-old with one parent
Five Wednesdays: October 17, 24, 31, and November 7 and 14.
2:15-3:15 p.m.
Fee: \$50 (\$45 for Members)
Limited to ten youngsters and ten parents.

Through movement, puzzles, and games, children develop a greater appreciation

for themselves and the animal world. Watching a live animal demonstration and exploring Museum exhibits awaken natural curiosity. Beginning with legs, arms, hands, and feet, children compare their own bodies to those of other animals. Children touch the fur of a zebra and try to find the whiskers of a lion and other specimens. Parent involvement is an essential part of the course, which will meet in the Museum's Discovery Room on the first floor. Taught by Susan Bromberg Kleinsinger, early childhood specialist.

Nature Activities for the Very Young

Grades 1 and 2
Four Sundays: October 14, 21, 28, and November 4
Section A: 10:15-11:15 a.m.
or
Section B: 11:30-12:30 p.m.
Fee: \$20 (\$18 for Members)

Children participate in fall nature activities. They study leaves, seed pods, and cones. Through stories and craft activities they learn how plants and animals in our local area prepare for winter. Children become more aware of the natural environment and the seasonal changes that occur in the city. Held in the Museum's Alexander M. White Natural Science Center. Taught by Mary Croft, Instructor in the Museum's Education Department.

Indian Games and Crafts

Grades 3, 4, and 5
Four Sundays: October 14, 21, 28, and November 4.
3:00-4:30 p.m.
Fee: \$20 (\$18 for Members)

Students are taught Native American games such as the hoop and double ball game. In their visit to the Eastern Woodland and Plains Indians Halls of the Museum, they see other aspects of Native American ways of life. Using plants to make natural dyes and spinning their own yarn, students learn how the Indians respected the natural world. The course includes a field trip across the street to Central Park to look at living plants the Indians found useful. Taught by Rob Bernstein, Instructor at the New York Botanical Gardens.

Investigating Invertebrate Behavior

Grades 7, 8, and 9
Six Sundays: October 14, 21, 28, and November 4, 11, and 18
10:30-12:00 p.m.
Fee: \$30 (\$27 for Members)

From earthworms to butterflies, students survey the fascinating world of invertebrates. What does a starfish eat? How does an earthworm breathe? How many different organisms can be found in a single drop of pond water? Performing simple behavioral experiments, students discover how these spineless animals have survived and adapted to many different environments. Using dissecting scopes as well as microscopes, students investigate internal and external anatomy to understand what has made this group of animals so numerous and successful. Taught by Dr. Betty Faber, Research Associate in the Museum's Entomology Department.

Mask Making

Grades 3, 4, and 5
Two Sundays: November 11 and 18.
3:00-5:00 p.m.
Fee: \$12 (\$10 for Members)

In this two-session course, children are introduced to African and Native American cultures. Using the Museum's exhibition halls, and making their own masks, they develop artistic skills, and begin to understand the different ways of life and the spiritual significance behind many masks. Materials provided. Taught by Juliette Leff, art education specialist.

Half-Day Workshops

Sessions run Saturdays from 10:30 a.m.-1:30 p.m. Students should bring a bag lunch.

Origami

Grades 5, 6, and 7
October 13
Fee: \$10.00 (\$9.00 for Members)

Origami is a Japanese word for the centuries-old art of folding single sheets of paper, without the aid of scissors or paste, to create objects. This introductory workshop includes learning how to fold a sailboat, a butterfly, a strawberry, and special things chosen by the students. Taught by Michael Shall, professional paper folder and volunteer origami specialist at the Museum.

Scaly World of Reptiles

Grades 4, 5, and 6
October 20
Fee: \$10.00 (\$9.00 for Members)

Feel a live snake. Watch a lizard feed. Can a turtle breathe underwater? Students observe and discover the amazing adaptations and behaviors of these animals. Through slides and a visit to the Hall of Amphibians and Reptiles, they explore habitats, defense, and locomotion. Taught by Dave Brody of the Museum's Entomology Department.

Create Your Own Insect Mask

Grades 4, 5, and 6
October 27
Fee: \$10.00 (\$9.00 for Members)

By first surveying the insect world, then focusing on specific groups, students learn about the amazing diversity of these animals. They learn about body parts such as jaws, antennae, and eyes — how they look and what they do. Students then use simple materials to create a mask with working parts. Although the mask can be partly imaginary, the student will be asked to explain how it is based on a real insect. Taught by Betty Faber of the Museum's Entomology Department.

Discovering the Microscopic World

Grades 5 and 6
November 3
Fee: \$10.00 (\$9.00 for Members)

An introductory course on how to use the microscope. Discover the shape of a salt crystal. Compare different kinds of animal hair and look at cheek and plant cells. Students learn how to prepare their own slides and view living organisms under the microscope. Taught by Juanita Munoz, Instructor in the Museum's Education Department.

Amazing Amphibians

Grades 5, 6, and 7
November 10
Fee: \$10.00 (\$9.00 for Members)

What is an amphibian? How do frogs communicate? Observe a frog eating. Discuss camouflage, skin toxins, and reproduction. Visiting the Hall of Reptiles and Amphibians, as well as seeing slides, students investigate exotic and common representatives of this fascinating group of animals. They make a small terrarium habitat to take home. Taught by Michael Klemens from the Museum's Herpetology Department.

Exploring With the Microscope

Grades 7 and 8
November 17
Fee: \$10.00 (\$9.00 for Members)

A more advanced course for those with previous experience using a microscope. Students identify certain protozoa and observe them eating. They learn microscopic technique and how to prepare microscope slides. They compare plant and animal cells, and make detailed drawings of what they see. Students have the opportunity to work more independently under supervision. Taught by Juanita Munoz, Instructor in the Museum's Education Department.

I would like to register for the following Workshop(s):

Workshop(s):

Student's last name: _____ First: _____

Age: _____ Grade: _____ Daytime phone: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

I enclose a stamped, self-addressed envelope and a check for \$ _____ payable to the American Museum of Natural History. Mail to: Workshops for Young People, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Museum Notes

Special Exhibitions

Ancestors: Four Million Years of Humanity. Through September 9 in Gallery 1. One of the most significant paleontological exhibitions ever undertaken, featuring human, pre-human, and other primate fossils.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor Information Desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

Group package tours for *Ancestors: Four Million Years of Humanity* are offered by the Office of Guest Services through September 6. For information, call (212) 873-6380.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is closed Monday and holidays all year and for the entire month of September.

The Leonhardt People Center features ethnic programs of dance, music, films lectures and workshops. Weekends from 1:00 to 4:30 p.m. Closed in September.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen, four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may

vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free for programs and courses on Monday, Tuesday, and Thursday evenings except during the Margaret Mead Film Festival in September.

If the lot is full, there are several independently operated garages within walking distance of the Museum. **We have made no arrangements with the following garages and can assume no responsibility for your use of them:**

Astor Garage
267 W. 87th St., between Broadway and Amsterdam. Open 6:30 a.m. to 1:00 a.m., 7 days per week.

B + W Garage
254 W. 79th St., between Amsterdam and Broadway. Open 7:00 a.m. to 1:00 a.m., 7 days per week.

Beljord Garage
252 W. 87th St., between Broadway and Amsterdam. Open 6:00 a.m. to 1:00 a.m., 7 days per week.

Berkley Garage
201 W. 75th St., between Amsterdam and Broadway. Open 6:00 a.m. to 1:00 a.m., 7 days per week.

Mayfair Garage
15 W. 72nd St., between Central Park West and Columbus Avenue. Open 7:00 a.m. to 12:00 midnight, 7 days per week.

McMillan Crawford Garage
219 W. 84th St., between Amsterdam and Broadway. Open 6:00 a.m. to 12:00 midnight, 7 days per week.

Pyramid Garage
351 Amsterdam Avenue at 77th St. Open 6:00 a.m. to 1:00 a.m., 7 days per week.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m. During the Margaret Mead Film Festival,

September 17 through September 20, the Museum will remain open until 10:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express now has a non-smoking section. Open until 8:30 during the Margaret Mead Film Festival, September 17 through 20.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Terrace Cafe. Open daily, weather permitting, through October, from 11:30 a.m. to 4:00 p.m. Located on the steps of the Roosevelt entrance on Central Park West.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following programs in October.

The Caribbean will be featured in the Leonhardt People Center.

Natural Moments. Tuesday, October 2 at 7:30 p.m. (Page 1.)

Origami Workshops. Four consecutive Wednesdays beginning October 10. (Page 2.)

Workshops for Young People. Begin Saturday, October 13. (Page 14.)

Special Members' Preview: Asante. Sunday, October 14. (Page 11.)

Ghosts and Ghouls. Saturday, October 27 at 1:30 and 3:30 p.m. (Page 3.)

Afternoon and Evening Lecture Series. Begins Monday, October 29. (Page 4.)

Bat Facts. Tuesday, October 30 at 7:30 p.m. (Page 3.)

Members' Tour of the Month

The Hall of Ocean Life



One of the sea mammals you'll meet on your tour.

Larger than 30 elephants, the blue whale is a majestic creature. Its mighty heart weighs over a thousand pounds, and some of its arteries are so large a small child could crawl through them. Like most of its relatives, the blue whale is an intelligent, social animal. Like most of its relatives, its survival is precarious.

Members are invited to learn about the blue whale and other ocean dwellers in a special Members' tour of the Hall of Ocean Life. Volunteer guides of the Museum Highlights Tours program will introduce you to fish, sea mammals, mollusks, and many other fascinating creatures who spend their lives in and by the sea.

In one habitat group a sperm whale and a giant squid battle in the near dark. In another a sea turtle flees for its life, two tiger sharks close behind it. In a third display case just a few feet away from these scenes of struggle, a sea otter basks calmly on its back in a shel-

tered cove, wrapped in strands of sea kelp. Members will learn about the behavior and survival strategies of these and many other animals.

You will also learn something disturbing — the extent to which many of the creatures you will see are in danger of extinction. Not only individual species, but entire environments, are threatened and endangered by the effects of hunting, boating, pollution, and other aspects of our industrial age. One such environment is the coral reef, a world unto itself where diverse plants and animals live in balance with one another. One coral reef display in the hall contains sixty-seven different plants and animals, including the scarlet chimney sponge, the purple sea bush and the blue parrotfish.

Members will learn not only about the status of many of these creatures and their environments, but what is being done to conserve them.

To sign up for the tour, please use the coupon below.

Members' Tour: Hall of Ocean Life

Please indicate a first, second and third choice.

Saturday, October 13	11:00 a.m.	11:15 a.m.
Sunday, October 14	11:00 a.m.	11:15 a.m.
Wednesday, October 17	6:00 p.m.	7:00 p.m.
Saturday, October 20	11:00 a.m.	11:15 a.m.
Sunday, October 21	11:00 a.m.	11:15 a.m.
Wednesday, October 24	6:00 p.m.	7:00 p.m.
Friday, October 26	6:00 p.m.	
Saturday, October 27	11:00 a.m.	11:15 a.m.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to Ocean Life, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Registration closes September 28.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1

September 1984

- 2 First Quarter (half moon)
- 3 Labor Day (Museum open)
- 4
- 5

- 9 2:00 p.m. Portrait of Teresa. Film and discussion about Cuban women. Kaufmann Theater. Free. Page 11. Last day to view Ancestors: Four Million Years of Humanity Gallery 1.

10 Full Moon

11 7:30 p.m. Moari Performance. Auditorium. Free. Page 2.

12 Members of the Papua New Guinea Adventue arrive in the Tobhand Islands. For information on Discovery Tours call (212) 873-1440.



- 16

17 6:30-10:00 p.m. Margaret Mead Film Festival. (See program pages 7-10.) Courses for Stargazers begin today. Page 6

18 7:00-9:00 a.m. Fall Bird Walk with Steve Quinn. For information, call (212) 873-7507

19 6:30-10:00 p.m. Margaret Mead Film Festival. (See program pages 7-10.)

20 9:00-11:00 a.m. Fall Bird Walk with Steve Quinn. For information, call (212) 873-7507

21

22 Autumnal Equinox (Autumn begins at 8:33 p.m.)

- 23

24 New Moon (moon is at perigee, closest to the earth at 221,800 miles)

25 7:00-9:00 a.m. Fall Bird Walk with Steve Quinn. For information, call (212) 873-7507.

26

27 Rosh Hashanah (Museum open)

28 Members of the Greece and Greek Islands Tour arrive in Athens. For information on Discovery Tours call (212) 873-1440.

29 11:00 a.m., 2:00 and 4:00 p.m. Spuyten Duyvil. Special Members' Tour with Sidney Horenstein. \$5. and open only to Members. Reservations required. Page 11.

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol 9, No. 8 October 1984

Behind the Scenes

The Museum's Department of Invertebrates contains specimens which span more than 700 million years of the earth's history. Members are invited to view many of these specimens and to meet the scientists who collect and study them.

Page 3

Leakey Lecture

This month at the Museum Dr. Mary Leakey speaks of her work, her life, and her new soon-to-be published autobiography.

Page 4

Bat Facts

No bats? No baobab trees. Bats are among the world's most important pollinators. Learn the truth about the world's only flying mammals as Dr. Merlin Tuttle gives a slide show/discussion of these fascinating creatures.

Page 3

Missions in Space

Due to the tremendous popularity of our first Spacelab program, the Museum has once again invited an astronaut to the Museum to talk of experiences in space, show "home movies," and discuss Spacelab's important scientific research.

Page 3



These akua'mma were believed to enhance the fertility of the Asante woman.

Asante: Kingdom of Gold

Exhibition opens October 16 in Gallery 3. Members' Preview: October 13

Take a journey back to the pre-colonial life of a famed and powerful people and their west African Gold Coast kingdom. In the new exhibition *Asante: Kingdom of Gold*, you'll stroll through a royal African courtyard surrounded by ceremonial and everyday objects which reflect the spiritual, economic, and political life of the Asante.

Gold weapons, bronze weights used in measuring gold dust, wooden sculptures, magnificent silk and cotton textiles, and multicolored umbrellas are among the more than 800 artifacts you'll see. Accompanying the artifacts are historical photographs illustrating the precolonial period, the British conquest of the Asante and the restoration of the Asante confederacy in modern times.

For two hundred years prior to the British conquest in 1896, the Asante dominated West Africa. They were important world leaders of gold production, controlling the gold mining industry and the distribution of gold dust which was used as currency. They regulated trans-Saharan and Atlantic coast trade of many commodities including armaments, crafts, and kola nuts.

The power and status of the Asante king (the Asantehene) was reflected in the magnificent gold regalia and other elaborate artifacts that surrounded him and his retinue. A number of these objects, made by highly skilled craftsmen working in the royal courts, are on display in the exhibition.

Although times have changed, the

Asante are not gone — they continue to live in modern Ghana, and their cultural influence has extended to the Americas. The current Asante king, Otumfuo Opoku Ware II, will be here in New York this month to preside at a number of events at the Museum.

Asante: Kingdom of Gold comes to us from the Museum of Mankind in Britain (The Ethnography Department of the British Museum), whose collection of Asante artifacts is the largest outside of Ghana.

Members are invited to a special preview and film three days before the exhibition opens to the public (coupon, page 2). In addition, the Department of Education presents a lecture series complementing the exhibition (page 4).

The exhibition is funded in part by an indemnity from the Federal Council on the Arts and Humanities, a grant from the National Endowment for the Humanities, and gifts from Ann Hutchinson and contributions to the Museum.

Golden Stars of Steel

Sunday, October 7th, 2:00 and 4:00 p.m.
Kaufmann Theater
Free

Word has it that the steel drum was a spontaneous invention which occurred when World War II ended. People in Trinidad took to the streets, banging cans in celebration of peace. The steel drum, made of oil drums which were cut, burned, and grooved to vary sound, tone and pitch, was born soon afterwards. Today many steel drums are custom-made, and can play a variety of notes.

The tenor drum, for example, which generally carries the melody, may play up to 35 different notes! This month Museum visitors can enjoy the rhythms and melodies of steel drums, performed by the Ah Wee Golden Stars. Like most modern steel bands, the Ah Wee Golden Stars display a versatility which was unknown in the music of the first steel bands. The musicians will play

everything from traditional calypso music to classical favorites using a combination of drums, cymbals, irons and other percussion instruments.

The program promises to be a popular one, so Members are advised to arrive early to obtain seating.

This month is Caribbean Month at the Museum. Additional exciting Caribbean programs are listed in the October calendar on page 8.



Eohippus, ancestor of the modern horse, had four toes on the front feet and three on the back.

Members' Tour of the Month

The Mammalian Past

Free and Open only to Members

Journey through more than fifty million years of North American mammal evolution as you walk through the Halls of Early, Late and North American Mammals.

The tour will trace the development of some extremely successful families such as that of the horse, which has many representatives in the modern world, including modern horses, zebras and donkeys. You will discover other mammalian groups, such as the rhinoceros-like uinatheres, which were already extinct by the early Eocene for reasons unknown, and have no living descendants.

Why have some mammals survived and developed over many millions of years while others have lived only briefly, disappearing from the earth before we could ever see them? How has the movement of land masses affected the course of mammalian evolution? Volunteer tour guides of the Museum Highlights Tours program will address these and other issues.

The tour will conclude in the Hall of North American Mammals, where Members can compare differences and

similarities among modern mammals such as bison and musk oxen and their relatives

of past epochs.

To join the tour, please use the coupon below.

The Mammalian Past This program is open to Members only. Please indicate a first, second and third choice of dates and times.

Wednesday, November 14	6:00 p.m.	7:00 p.m.
Saturday, November 17	11:00 a.m.	11:15 a.m.
Sunday, November 18	11:00 a.m.	11:15 a.m.
Wednesday, November 28	6:00 p.m.	7:00 p.m.
Friday, November 30	6:00 p.m.	
Sunday, December 2	11:00 a.m.	11:15 a.m.
Wednesday, December 5	6:00 p.m.	7:00 p.m.

Number of tickets:

Name:

Address:

City:

State:

Zip:

Daytime Phone:

Membership category:

Please mail with a self-addressed, stamped envelope to: Mammals Tour, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024 **Registration closes October 20**

ROTUNDA

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The Museum receives substantial support from a number of major sources. We are particularly grateful to the City of New York which owns the Museum buildings and provides funds for their operation and maintenance, and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 300 corporations, 60 private foundations, 460,000 members, and numerous individual contributors.

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This sculpture of a hornbill with its foot in a snake's mouth once adorned a royal person's umbrella.

Members' Preview for Asante: Kingdom of Gold.

Saturday, October 13. This program is open only to Participating, Donor and Contributing Members. Please indicate a first and second choice of times.

10:00 a.m. - 12:00 p.m.
12:00 - 2:00 p.m.
2:00 - 4:00 p.m.
4:00 - 6:00 p.m.

Number of people:

Name:

Address:

City:

State:

Zip:

Daytime Phone:

Membership category:

Please mail with a self-addressed, stamped envelope to: Asante, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Space Shuttle Update

Wednesday, November 14, 7:30 p.m.
Main Auditorium
\$3.00 and open only to Members

Last January, astronaut Robert Parker gave Museum Members a first-hand account of his experience aboard NASA's Spacelab 1 Mission. Due to the tremendous popularity and interest that program generated, we have invited another astronaut from NASA to give us an update on the Space program.

Spacelab 1 performed a number of valuable scientific experiments ranging from measuring gas in the upper atmosphere to studying the growth of crystals and

assessing the effects of weightlessness on the workings of the inner ear. Spacelab 1 also brought back unprecedented photographs which will be used to map yet uncharted portions of the earth's surface.

The astronaut will describe some of the results of the shuttle missions and plans for the future. "Home movies" made in space will give Members an inside view of the experiments performed on the shuttle missions, and a sense of what it is like to fly in space. A major portion of the

program will be devoted to answering your questions.

As of press time, NASA could not tell us which astronaut would be coming to speak at the Museum. However, if circumstances and schedules permit, the astronaut will be from the most recent shuttle mission.

Space Shuttle Update is being presented in cooperation with the American Institute of Aeronautics and Astronautics. To register for the program, please use the adjacent coupon.

Space Shuttle Update Wednesday, November 14. This program is open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to three tickets at the Members' price of \$3.00. Associates are entitled to one.

Number of tickets at \$3.00: _____
Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to *Spacelab*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024. **All ticket orders received by October 25 will be treated on an equal basis.** If necessary a lottery system will be used to distribute tickets. After October 25, please call (212) 873-1327 for ticket availability.

Participating, Donor and Contributing Members are invited to a special
Behind-the-Scenes Tour
of the Department of Invertebrates
Saturday, November 3
and Wednesday, November 7
\$7.00, and open only to Members and their guests

Join us for a Members-only look at the Museum's Department of Invertebrates.

The Department's collection of fossils and recent invertebrates consists of over 8.5 million specimens spanning more than 700 million years of the earth's history. Scientists will be on hand to show you the collections and to answer your questions.

Members will view the Museum's magnificent shell collection, containing shells of all shapes, sizes and colors from every part of the world. Members will also see million-year-old fossils, beautiful corals and exotic crabs.

A technician from the department will demonstrate how different specimens are prepared for study. Then the

scientific staff will discuss the department's own research, which ranges from a study of the evolution of the nautilus to work on the life history of bryozoans (colonial animals found on coral reefs).

The tour will conclude with coffee, tea and cider in the Audubon Gallery.

Please use the adjacent coupon to register.

Behind the Scenes Tour. Open only to Participating, Donor and Contributing Members.

Tours will leave at fifteen-minute intervals. We will send you a confirmation card by mail indicating the exact time your tour will start. Please indicate a first, second, and third choice.

Saturday, November 3 between 10:30 a.m. and noon
Saturday, November 3 between 1:00 and 2:30 p.m.
Wednesday, November 7 between 5:15 and 6:00 p.m.
Wednesday, November 7 between 6:00 and 7:30 p.m.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Enclosed is my check for \$_____ to reserve _____ places at \$7.00 each for the Behind-the-Scenes Tour.

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to *Behind-the-Scenes Tour*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. **All ticket orders received by October 20 will be treated on an equal basis.** If necessary, a lottery system will be used to distribute tickets. After October 20, please call (212) 873-1327 for ticket availability.

Bat Facts
Tuesday, October 30, 7:30 p.m.
Main Auditorium
\$2.50 for Members, \$5.00 for non-members

Did you know that there are nearly a thousand kinds of bats, and that they inhabit almost every part of the earth? Or that they range in size from one bat as small as a bumblebee to another with a six-foot wingspan? Learn these and other bat facts as Merlin Tuttle, a zoologist at the Milwaukee Public Museum, takes you on a photographic tour of the bats of South America, Asia, Africa,

and North America.

Members will see fruit-eating bats who are nature's most important seed dispersing mammals and nectar-eating bats who are the primary pollinators of numerous tropical plants. These creatures have greatly influenced the survival of countless everyday items such as peaches, cashews, and chicle latex used for chewing gum.

Dr. Tuttle is the founder

and president of "Bat Conservation International." He has studied bats for decades and is an internationally prominent scientist, author and conservationist. Join him on the night before Halloween, when he will share his knowledge and admiration for these fascinating animals, and explain the ever-growing need for their conservation. To register for *Bat Facts*, please use the adjacent coupon.

Bat Facts. Tuesday, October 30, 7:30 p.m. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$2.50. Associates are entitled to one. All other tickets are \$5.00.

Number of Members' tickets: _____ X \$2.50 \$
Number of non-members' tickets: _____ X \$5.00 \$
Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to *Bats*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024. **Mail registration closes October 20.** After that date please call (212) 873-1327 for ticket availability.

Asante: Kingdom of Gold Lecture Series



This terracotta head probably represented an important deceased Asante leader.

The precolonial splendor of the Asante people of West African Ghana is the focus of the exhibition *Asante: Kingdom of Gold*, opening October 16 at the American Museum (see page 1). In conjunction with the exhibition, the African American Program of the Department of Education will present the following five lectures, made possible by a grant from the National Endowment for the Humanities.

Recreating the Kingdom of Asante

Thursday, October 18
7:00 p.m.

Main Auditorium.

Malcolm McLeod, visiting curator from the Museum of Mankind in London, will give a behind-the-scenes look at the creation of the Asante exhibition. His lecture will cover the problems encountered by curators in recreating traditional Asante culture and in discovering many lost resources. Historic photographs and drawings, along with pictures showing how the exhibit was originally built in London, will accompany this unusual look at the making of a major exhibition.

Rise of the Asante Empire

Friday, October 19
7:00 p.m.

Main Auditorium

Professor A.A. Boahen of the University of Ghana will describe conditions that led to the power and wealth of the Asante kingdom in the eighteenth and nineteenth centuries. He will discuss the development of the sophisticated "golden culture" of the Asante, noted for its intricate Kente cloth, gold regalia, colorful umbrellas, and famous gold weights.

The Golden Jubilee of the Asante Confederacy

Wednesday, October 31
7:00 p.m.

Main Auditorium

Stephen Andoh, secretary to the Asantehene, King Otumfuo Opoku Ware II, and noted scholar, will speak on the restoration of the Asante Confederacy during the past fifty years.

The Feminine Eye in Kumase: Asante Women and Their Arts

Sunday, November 4
2:00 p.m.

Kaufmann Theater

Dr. Sylvia Ardyn Boone of Yale University will present a slide-lecture which explores visual arts created by Asante women. She will describe the roles played and the needs fulfilled by art in everyday Asante life, and discuss the Queen mother's influence as ruler of women, priestess of the moon, and patron of the arts.

The Contemporary Position of the Asante in Ghana

Wednesday, October 24
7:00 p.m.

Main Auditorium

Dr. Kwame Arhin of the University of Ghana will speak about changes in Asante culture since the British annexation at the end of the nineteenth century. He will discuss the position of the Asante people in Ghana today, and some of the traditional patterns that are still maintained.

All of the lectures are free to Museum visitors. Seating is on a first-come, first-served basis, so Members are advised to arrive early. For further information, call (212) 873-1300, ext. 514.

Disclosing the Past

Wednesday, October 17, 7:00 p.m.

Main Auditorium
Free

Mary Leakey first developed an interest in prehistory at age 11, on a visit to Cabrerets, France. There she explored the paleolithic caves with Abbe Lemozi, a priest. Of this early experience, she wrote "The Abbe kindled my interest in prehistory and also gave me a very sound groundwork in excavating. After that, I don't think I ever really wanted to do anything else."

These were the words of a girl who was to devote her adult life to archaeology and anthropology. Working with other members of the famous Leakey family, as well as on her own, Mary Leakey went on to help rewrite the past. She made several major discoveries including that of the *Zinjanthropus* skull, a find that gave the world its first knowledge of a hominid who lived almost two million years ago.

This month, this fascinating scientist will speak at the Museum about her new autobiography, *Disclosing the Past*. The book, to be published this month by Doubleday and Co., Inc., describes Leakey's quest to uncover the secrets of the past from early childhood experiences, through her rewarding years of discovery in East Africa with Louis Leakey, and her most recent research. It takes an inside look at a remarkable family, an archaeological adventure spanning three continents, the history of modern archaeology and anthropology, and the struggles of a woman scientist.

The lecture is free with Museum admission. This promises to be a very popular program, so Members are advised to arrive early to obtain seating.



Las Pleneros de la 21 will perform traditional Afro-Puerto Rican Music on Sunday, October 28th in the Kaufmann Theater, 2:00 and 4:00 p.m. See page 8 for other free Caribbean performances and programs. For additional information about Caribbean Month programs, call (212) 873-1300, ext. 514.

One Step Beyond

Saturday, October 27 Kaufmann Theater

Children's Program: 1:30 and 3:30 p.m. Adults' Program: 7:30 p.m.

See coupon for ticket prices

When can a girl marry a ghost and a father retrieve his daughter from the land of the

dead? When else but on Halloween, and during the program *Ghosts and Ghouls and*

Other Strange Things, when entire families can transform themselves into witches!

Step into a supernatural world with storyteller Laura Simms and musician Steven Gorn for a day of unforgettable Native American, African and Central Asian tales of mystery and — who knows what else . . .

The afternoon programs, created especially for children ages eight and above, will include a classic Korean tale about a woodcutter who meets a snake and a story about a man who digs and digs until he finds a big hairy toe in the ground!

In *Ghosts and Ghouls and Other Strange Things*, Ms. Simms, one of America's foremost performers and students of world folklore, and Mr. Gorn, a master of Indian, Asian and African flutes and percussion instruments, are back for their fifth year of ghostly stories and chilling music. To register for the program, please use the adjacent coupon.



An inspired Laura Simms smiles in the midst of a story.

Ghosts, Ghouls and Other Strange Things Saturday, October 27. Members' Tickets are \$3.00 for adults and \$2.00 for children. Non-members' tickets are \$4.00 for adults and children

Number of Members' children tickets	X \$2.00 \$
Number of Members' adult tickets	X \$3.00 \$
Number of non-members' tickets	X \$4.00 \$
Total amount enclosed.	\$

Please indicate a first and second choice, if possible
 1:30 p.m. 3:30 p.m. 7:30 p.m.
 (for families) (for families) (for adults)

Name _____

Address _____

City: _____ State: _____ Zip _____

Daytime Phone _____

Membership category _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Ghosts, Ghouls and Other Strange Things*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. This program was originally advertised in the September *Rotunda*. **A limited number of tickets are still available on a first-come, first-served basis.**

Soh Daiko

Saturday, November 17, 12:00 noon and 3:30 p.m.

Kaufmann Theater \$3.00, and open only to Members

During Japanese prehistory the drum (taiko) was a sacred part of life. For Buddhist and Shinto alike, the taiko communicated with the gods, brought on rain by mimicking thunder, signaled warfare, and chased insect pests away from valuable crops.

This month Members of all

ages can hear the sounds of the taiko, performed by the widely acclaimed group *Soh Daiko*, the only taiko group on the East Coast. Members will be introduced to traditional and contemporary compositions which may invoke gods, describe an evening storm, or celebrate a folk festi-

val. In one traditional composition, the drummers call upon dragons who descend from heaven three times to help humanity.

The drums of *Soh Daiko* express the traditions and values of both past and present, drawing upon Buddhist customs, ancient Shinto drum

practices and day to day aspects of secular life. In bringing these traditions together, *Soh Daiko* is a living expression of the original meaning of the word "soh" — "peace, harmony and working together."

Among the many festivals and programs in which *Soh*

Daiko has delighted audiences are New York's Cherry Blossom (Sakura Matsuri) Festival, Buffalo's Annual Ethnic Heritage Festival, and Florida's Morikami Museum Hatsume Fair.

Please use the coupon below to register for the program.



Soh Daiko. Saturday, November 17. This program is \$3.00 and open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to one. Additional tickets are \$5.00. Please indicate a first and second choice of times.

noon 3:30 p.m.

Number of Members' tickets at \$3.00	
Number of additional tickets at \$5.00	
Total amount enclosed:	\$

Name _____

Address _____

City: _____ State: _____ Zip _____

Daytime Phone: _____

Membership category _____

Please make check payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: *Soh Daiko*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. **All tickets received by October 25 will be treated on an equal basis.** If necessary a lottery system will be used to distribute tickets. After October 25, please call (212) 873-1327 for ticket availability.

Volunteer for Knowledge

Do you ever visit the Museum and wonder about the stories behind some of the terrific exhibitions like African Mammals, Dinosaurs, Minerals and Gems, and the many special temporary exhibitions that appear here?

As a Museum Highlights Tour Guide, not only can you learn more about the Museum and its many exhibition halls, but you can also share that

information with others. The Museum's Volunteer Department is looking for people who are interested in giving tours weekdays and week-ends.

If you would like to be trained as a Museum Highlights Tour Guide, please contact Ms. Sheila Greenberg of the Volunteer Office at (212) 873-1300, ext. 538 to schedule an interview.

An Astronomical Library

Many of the metropolitan area's astronomy enthusiasts, including Members who have visited the Hayden Planetarium, have not yet discovered our astronomy library. Considered by many to contain the finest collection of any planetarium in the country, it is the only planetarium library in the world which is open to the general public for research and study.

Named in honor of the late Richard S. Perkin, a Museum Trustee, our library is located on the first floor of the Planetarium. In addition to the extensive collection of 92 journals and periodicals, Mt. Palomar Sky Surveys and Whiteoak Charts, the Richard S. Perkin Library contains over 15,000 books (95% of which are first editions) in the areas of astronomy, astrophysics, aviation, navigation, meteorology, space technology and aeronautics. These volumes range from an original copy of the famous Bayer

Atlas published in 1603 to the latest space reports from NASA. Supplementing the reading material are 150 astronomical films and nearly 15,000 photographs.

Don't think for a moment that an astronomy library is useful only for those interested in astronomy! Among the people who have used the library in the past were a Julliard choreographer looking for space music and scenery, and a scarf designer in search of a beautiful star pattern!

The library contains ample study space, a photocopier, a microform system for reading and printing. It has served as a backdrop for interviews with such astronomical celebrities as Carl Sagan.

Our collections are non-circulating. The library is open by appointment to the general public for research purposes from 1.00 to 4.45 p.m., Monday through Friday. Call (212) 873-1300, ext. 478 for an appointment.



Ban Chiang and the Bronze Ages of Asia

Exhibition opens Friday, November 9
Lecture Series begins Tuesday, November 13

Ban Chiang was a highly innovative prehistoric society in what is now northeastern Thailand. The recent discovery of this previously unknown society has uncovered a culturally developed, early bronze age society.

Four thousand years of this early culture will be represented in the exhibition *Ban Chiang: Discovery of a Lost Bronze Age*, opening in Gallery 1 on November 9. At least 150 artifacts from the excavation site and others from the National Museum in Thailand will be featured in the exhibition. The artifacts include red-on-buff pottery, bronze tools, ornaments and weapons, rare glass beads and necklaces, and animal bones.

In conjunction with the exhibition, the following lectures, sponsored by the Department of Education, begin in November. To register for the lecture series described below, please use the adjacent coupon. For information about many other fascinating Fall Series, see the September *Rotunda* (pages 4-5), mail in the coupon below, or call the Department of Education at (212) 873-7507 for a free brochure. Fall courses which begin October 29 include: *Mammals of North America*; *Magic, Witchcraft, and Sorcery*; *Great Parks of the World* and *Ethnobotany of North American Indians*.

Bronze Ages of Asia:
Three Tuesday evenings
starting November 13
7:00 - 8:30 p.m.

\$20
(\$18 for Participating, Donor and Elected Members)

Nov. 13 BAN CHIANG. AN UNEXPECTED AGE: Joyce C. White, Exhibition Curator for the Ban Chiang exhibition, and Research Associate in the Asia Section of the University Museum, University of Pennsylvania, presents the archaeological detective story behind the discovery, excavation and analysis of the Ban Chiang site in Northern Thailand.



Red-on-Buff pottery from Ban Chiang showing classic swirl design.

Nov. 20 THE BRONZE AGE IN THE NEAR EAST: Dr. Tamara Stech, Adjunct Associate Professor of Material Science and Engineering at the University of Pennsylvania, discusses the Near East, which has long been the archaeological yardstick against which other bronze age cultures were measured.

Nov. 27 THE BRONZE AGE OF CHINA: NEW EVIDENCE THROUGH RECENT ARCHAEOLOGY: Dr. Robert L. Thorp, a professor at Washington University in St. Louis, discusses research which has shed light on the beliefs and cult practices in which bronze ritual vessels were used.

☐ Please send a free brochure describing Fall Afternoon and Evening Lectures to me at the below address

☐ I would like to register for *Bronze Ages of Asia*. I have enclosed \$18 if I am a Participating, Donor, or Elected Member, or \$20 if I am an Associate Member or non-member.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

If registering for *Bronze Ages of Asia*, please enclose a check payable to the American Museum of Natural History, and a self-addressed, stamped envelope. Mail to Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024

Museum Notes

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express now has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Terrace Cafe. Open daily, weather permitting, through early October, from 11:30 a.m. to 4:00 p.m. Located on the steps of the Roosevelt entrance on Central Park West.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Special Exhibitions

Asante: Kingdom of Gold. October 16 through March 17, 1985. This exhibit recreates the precolonial splendor of the Asante people and their west African king-

dom. The thrust of the show is environmental, with special emphasis on the Asante world view interpreted through more than 800 artifacts from the British Museum, home of the greatest collection of Asante material outside Ghana.

Programs and Tours

Museum Highlights
Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet

wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free for programs and courses on Monday, Tuesday, and Thursday evenings.

There are several independently operated garages within walking distance of the Museum. See September issue for listing.

Looking Ahead

Be on the lookout for the following programs and events:

□ November is Africa Month in the Leonhardt People Center.

□ A new permanent exhibition hall, *The Margaret Mead Hall of Pacific Peoples*, will be opening in December. Stay tuned to future issues of *Rotunda* for further information.

□ On December 13, Members can enjoy listening to the beautiful Brandenburg Concerti Numbers four and five, as you sit beneath a clear winter sky — in the Hayden Planetarium. Details in the November *Rotunda*.

□ The winter holiday season is almost upon us — you'll find news about our magnificent annual Holiday Ongami Tree and the Hayden Planetarium's new winter sky show in the November *Rotunda*.

Happenings at the Hayden



Big Bird invites preschoolers to enjoy the splendor of our skies.

Return of the Sesame Street Muppets®

Last year, the Planetarium introduced *Wonderful Sky*, its first show designed especially for preschoolers ages three to six. The response was overwhelming. Three Members' specials sold out and regular performances were booked solid months in advance.

Through the kind permission of the Children's Television Workshop® children can once again be delighted by their favorite Sesame Street Muppets® as they learn the wonders of the sky.

Children will be greeted in the Sky Theater by a teacher-host, and joined by images of Big Bird, Cookie Monster, Grover, Oscar the Grouch and other colorful characters. Through dialogue, song and audience participation children will explore rainbows, sunsets, and distant, sparkling stars.

Reservations are strongly recommended for this popular show. You can find a schedule of this and next year's performances below. For *Wonderful Sky* information, please call (212) 873-5714.

©1984, Children's Television Workshop; Muppets, Inc.

Sky Shows

Star Quest. Through November 18. Come take a look at past, present and future conquests of space from the earliest rockets to tomorrow's planetary outposts and flights to the stars.

Leonard Nimoy of *Star Trek* fame narrated the sound track. *Star Quest* will be shown weekdays at 1:30 and 3:30 p.m., Saturdays at 11:00 a.m. and hourly from 1:00 to 5:00 p.m., and Sundays, hourly from 1:00 to 5:00 p.m.

Sky Show admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member prices please call (212) 873-8828.

Laser Zeppelin and Laser Floyd

Laser visuals and the music of Led Zeppelin combine to create a unique and dazzling experience of sight and sound, Friday and Saturday at 7:30 and 10:30 p.m.

The music of Pink Floyd will be featured on Friday and Saturday evenings at 9:00 p.m. in our new *Laser Floyd* show.

Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information about the laser shows, call (212) 724-8700.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

When in doubt, call before coming. All prices and show times are subject to change without notice.

Wonderful Sky 1984-85 Schedule

Weekday Programs		Weekend Programs
10:15 a.m.	11:25 a.m.	10:00 a.m.
	October 23	October 6
November 8-16	November 16	November 3
		December 1
January 9-25	January 17-25	January 5
February 4-14	February 4-27	February 2
March 15	March 7-19-27	March 2
April 2-18	April 2-17	April 6
May 7-9-14	May 3-7-9-28	May 4
June 6-11-17	June 11	June 4



The Planetarium will give away 300 STARQUEST posters to the first 300 children to attend the STARQUEST Sky Show, Saturday, October 13.

Mon

Tue

Wed

Thu

Fri

Sat

Sun

1 First Quarter (half moon)

2 7:00 - 9:00 a.m. Bird Walk in Central Park For information call (212) 873-7507

7:30 p.m. **Natural Moment. Members' Evening Program.** Auditorium. Free and open only to members. Tickets required.

8 Moon is at apogee (farthest from the earth at 252,400 miles)

7 1:00 - 4:30 p.m. Caribbean Month. Trinidad. Herman "Rock" Johnson Steel Drums. Trinidadian religious traditions, and folktales of Trinidad. Leonhardt People Center. Free.
2:00 and 4:00 p.m. **Ah Wee** Golden Stars. Trinidadian steel band. Page 2

14 1:00 - 4:30 p.m. Caribbean Month. Jamaica. Traditional music and dance. Jamaican oral traditions, and "Rastafarian: A Way of Life." Leonhardt People Center. Free.

21 1:00 - 4:30 p.m. Caribbean Month. Same as October 20. Free.
2:00 p.m. N.Y. Paleontological Society. Room 426. Free.
2:00 p.m. N.Y. Turtle & Tortoise Society. Room 129. Free. Orionid Meteor Shower

28 1:00 - 4:30 p.m. Caribbean Month. Puerto Rico. Musica Jibara of Puerto Rico and Afro Puerto Rican traditions. Leonhardt People Center. Free.
2:00 and 4:00 p.m. **Los Pleneros de la 21.** Traditional Puerto Rican music and dance. Page 4.

29 Afternoon and Evening Lecture Series begin today. Page 6.



A dwarf epauletted bat dines on a fig. **Bat Facts, October 30, Page 3.**

16 7:00 - 9:00 a.m. Bird Walk in Central Park. For information call (212) 873-7507.
8:00 p.m. N.Y. Entomological Society. Room 129. Free. Asante: Kingdom of Gold opens in Gallery 3 Page 1.

17 7:00 p.m. **Disclosing the Past with Dr. Mary Leakey** Auditorium. Free Page 4
Last Quarter (half moon)

23 7:00 - 9:00 a.m. Bird Walk in Central Park. For information call (212) 873-7507.
8:00 p.m. **Met Grotto; Nat'l Speleological Society.** Room 129. Free.

Moon is at perigee (closest to the earth by 222,900 miles)

24 7:00 p.m. **The Contemporary Position of the Asante in Ghana.** Lecture with Kwame Arhin. Kaufmann Theater. Free
New Moon

25 9:00 - 11:00 a.m. Bird Walk in Central Park For information call (212) 873-7507.
2:00 p.m. **From Dinosaurs to Mastodons.** Gallery Talk Assemble at first floor information desk. Free.

18 9:00 - 11:00 a.m. Bird Walk in Central Park For information call (212) 873-7507
2:00 p.m. **Mexican and Central American Prehistory** Gallery Talk. Assemble at first floor information desk. Free.
7:00 p.m. **Recreating the Kingdom of Asante.** Lecture with Malcolm McLeod. Auditorium. Free. Page 4.

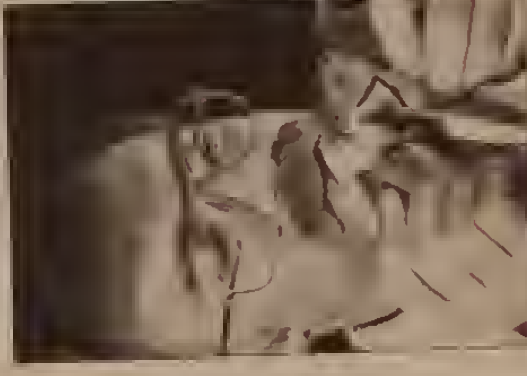
11 9:00 - 11:00 a.m. Bird Walk in Central Park For information call (212) 873-7507

2:00 p.m. **Trees of North America** Gallery Talk Assemble at first floor information desk. Free

10 6:30 - 8:00 p.m. **Ongami Workshop** begins. Registration required. For information, call (212) 873-1300, ext 472.

9 7:00 - 9:00 a.m. Bird Walk in Central Park For information call (212) 873-7507
Full Moon

19 8:00 p.m. N.Y. Microscopical Society. Room 419. Free
7:00 p.m. **The Rise of the Asante Empire.** Lecture with Adu Boahen. Main Auditorium. Free. Page 4



Dr. Tuttle holds a hungry cave-dwelling, nectar-eating bat. **Bat Facts, October 30, page 3.**

13 Workshops for Young People begin today.
10:00 a.m. - 6:00 p.m. **Members' preview: Asante: Kingdom of Gold.** Free and open only to members. Page 1.
11:00 a.m. N.Y. Map Society. Linder Theater. Free
1:00 - 4:30 p.m. Caribbean Month. Jamaica. Leonhardt People Center. Free. Same as October 14

6 1:00 - 4:30 p.m. Caribbean Month. Trinidad. Herman "Rock" Johnson Steel Drums. Trinidadian religious traditions, and folktales of Trinidad. Leonhardt People Center. Free

Members of the East African Safari arrive in Kigali, Rwanda. For information on future Discovery Tours call (212) 873-1440

20 1:00 - 4:30 p.m. Caribbean Month. Cuba. Traditional music and dance. Onsha tradition, and "Salsa: Cuba's Popular Music." Leonhardt People Center. Free.

27 1:00 - 4:30 p.m. Caribbean Month. Puerto Rico. Musica Jibara of Puerto Rico and Afro Puerto Rican traditions. Leonhardt People Center. Free.
1:30, 3:30, and 7:30 p.m. **Ghosts and Ghouls. Members' Family Program.** Tickets required. Kaufmann Theater. Page 5.

October 1984 American Museum of Natural History

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 9, No. 9 November 1984



Following the modern part of the marriage ceremony, this Korean bride and groom enjoy the traditional p'yebaek ritual. The chestnuts in the foreground are a symbol of fertility.

Love and Marriage Korean Style

Tuesday, December 4, 7:30 p.m., Main Auditorium
Free and open only to Members

Not very long ago in Korea, a bride and groom were wed in the *kusik*, or old style marriage. That they might very well be absolute strangers was not of popular concern; indeed it was considered better that way.

In the modern wedding or *sinsik*, the bride and groom may have "fallen in love" or they may have been introduced by matchmaking kinswomen. In either case, they are generally pleased with one another, and the marriage is agreeable to both.

In a slide-illustrated program, Dr. Laurel Kendall, a curator in the Museum's Department of Anthropol-

ogy, will explore the age-old ritual of marriage in Korean culture. Members will view slides of the traditional and modern behavior of the *churye* (respected elder), *sahoe* (emcee), the *sillong* (groom), and the *sinbu* (bride).

Dr. Kendall will discuss how changes in women's roles and economic importance, borrowed elements from Christian ritual, and new ideas about love and marriage have combined with Korean tradition, to create marriage ceremonies and practices which remain distinctly Korean. She will also discuss her interest in ritual, and how its study helps

the anthropologist to uncover the beliefs and structures not only of the particular culture being studied, but of humankind.

Among Dr. Kendall's fascinating sources of information are both ancient and modern books of Korean etiquette, and her own recent field work in Korea, where she attended many weddings and spoke to hundreds of Koreans about their lives and marriage practices. Dr. Kendall has also studied Korean shamanism and the lives of village women.

To register for this program please use the coupon on page 2.

Peace and Harmony

The Japanese taiko drum once communicated with the gods, brought on rain by mimicking thunder, and chased pests away from valuable crops. This month *Soh Daiko* brings the rhythms of this special drum to the Kaufmann Theater to entertain Members of all ages.

Page 5

Native Americans

Listings for two days of films on Native American culture, history, and art are featured in this issue.

Page 2

Bach By Starlight

Relax beneath a clear winter sky as chamber musicians perform two of Bach's beautiful Brandenburg Concerti at the Hayden Planetarium.

Page 5

Tall Tales of Tall Mountains

The people, history, folklore and rugged beauty of the Adirondacks are celebrated in storyteller John Vinton's renditions of tales from this mountainous region.

Page 3

Africa Month

November is Africa Month at the Museum. The new *Asante: Kingdom of Gold Exhibition* has opened in Gallery 3. Free programs, including a performance of Asante dances, will take place throughout the month.

Page 11

Native American Film Festival

Saturday, November 10 and Sunday, November 11
11:30 a.m. to 5:00 p.m., Kaufmann Theater
Free

Throughout Native American history the impact of the land has been of paramount importance in everyday life and ritual. Plants and animals have not only provided Native Americans with food and technology, but have also inspired rich and diverse artistic and spiritual lifestyles.

The continuing importance of the natural world in Native American life, as well as relations between Native American communities and the modern Americas as a whole will be explored in the films listed below. Many films will be introduced by the filmmaker.

This film festival is programmed by the Museum of the American Indian and presented in cooperation with the American Museum's Education Department. For further information, please call (212) 873-1300, ext. 514.

Films

Saturday, November 10

11:30 a.m. HOPI: SONGS OF THE FOURTH WORLD (1983, 58 min.) Pat Ferrero. The endurance of the traditional way in the cycles of Hopi life as told by Hopi artists, elders and educators.

12:45 p.m. THE RICE DANCER (1980, 23 min.) Gary Nichol. An Ojibwa elder of Ontario collects rice in the old way and explains the traditions of the harvest

1:15 p.m. THE GUAMBIANOS (1981, 60 min.) Woll Tirado and Jackie Reiter. Daily life of an Indian community in southwest Colombia is shown in this account of their struggle to retain traditional land.

2:30 p.m. ROCK ART TREASURES OF ANCIENT AMERICA (1983, 25 min.) Dave Caldwell. An exploration of the myths and sacred beliefs recorded by the Chumash, Mohave, and Shoshone Indians in ancient earthworks and rock paintings.

3:10 p.m. An ANCIENT GIFT (1982, 18 min.) Donald Coughlin. The central role of sheep in Navajo culture and society is shown through events of daily life.

3:40 p.m. WHITE SEED (1984, 20 min.) Frank Semmens. Members of New York State's Mohawk community focus on the significance of corn.

4:20 p.m. ABNAKI: THE NATIVE PEOPLES OF MAINE (1982, 30 min.) Jay Kent. The Micmac, Maliseet, Penobscot and Passamaquoddy reflect on the past and their identities as Indian people today.

Sunday, November 11

11:30 a.m. ALPACA BREEDERS OF CHIMBOYA (1984, 20 min.) Mananne Eyde. An economic system and its effects on the people

of a Peruvian Indian community are examined.

12:15 p.m. MOUNTAIN MUSIC OF PERU (1984, 60 min.) John Cohen. A world of music from the Altiplano, Cuzco and Lima. This film was also featured in this year's Margaret Mead Film Festival.

1:30 p.m. QUEEN VICTORIA AND THE INDIANS (1984, 11 min.) Barbara Wilk. This animated film tells of an 1848 meeting between Ojibwa Indians and the Queen of England.

1:50 p.m. OUR SACRED LAND (1984, 27 min.) Chris Spotted Eagle. Indian people present their views on sacred lands under dispute in South Dakota.

2:40 p.m. INCIDENT AT RESTIGOUCHE (1984, 45 min.) Alanis Obomsawin. Micmac Indians of Quebec defend their treaty rights against government opposition.

3:45 p.m. OUR LAND, OUR TRUTH (1982, 60 min.) Maurice Bulbulian. Inuit communities in Canada struggle to continue traditional subsistence against the pressures of modern life.

This program was made possible by generous support from The New York State Council on the Arts, the Christian A. Johnson Endeavor Foundation, and the Film Bureau, Young Filmmakers/Video Arts.



Musicians of Southwest Colombia in The Guambianos

ROTUNDA

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A Navajo Indian and his sheep in An Ancient Gift

Love and Marriage. Tuesday, December 4. This program is free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00.

Number of tickets _____

Name: _____

Address _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Love and Marriage, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY. 10024. Mail Registration closes November 23. After that date, please call (212) 873-1327 for ticket availability.

The Margaret Mead Hall of Pacific Peoples

Exhibition opens Friday, December 14
Special Members' Preview Sunday, December 9



Wooden figurine from Easter Island

Members can be the first to view a new permanent exhibition hall dedicated to Dr. Mead and her work in the Pacific islands. *The Margaret Mead Hall of Pacific Peoples* opens next month in the west wing of the third floor.

From cooking utensils to religious statuary, the new hall explores the cultures of the Pacific islands.

Among the 1,488 artifacts on display are a cast of a 12-foot-high head from Easter Island, a collection of Maori smoked, tattooed heads from New Zealand, and the dowry of goods that a Manus bride wore on her back to be delivered to her groom's family. The artifacts, many of which were collected by Dr. Mead, span in time from the early 1800's to post World War II.

At the Members' opening, you will view *Portrait of a Friend*, filmed in Dr. Mead's former Museum office and in several of the exhibition halls. In the film, Dr. Mead speaks

of her work in the Pacific Islands and at the Museum. To register for the special

Members' Opening, please use the adjacent coupon.

Members' Preview of the Margaret Mead Hall of Pacific Peoples.

Sunday, December 9.

Please indicate a first and second choice of times.

_____ 10:00 a.m.-12:00 p.m.
_____ 12:00-2:00 p.m.
_____ 2:00-4:00 p.m.

Number of people: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *Pacific Peoples*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Mountain Stories

Thursday, November 29, 7:30 p.m.

Guggenheim Space Theater

\$4.00 for Members. \$6.00 for non-members

Next year, legislation preserving the Adirondack and Catskill forests will be a century old. As an advance celebration of this event, the Adirondack Council and the Museum's Membership Office will present a program of nineteenth century folk and literary tales.

This month, the Adirondack storyteller John Vinton will tell yarns by and about woodsmen whose personalities captivated early tourists, and will portray the experiences of Adirondack vacationers from the 1860's and 70's.

Imaginary animals, Indian legends, the beauty and mystery of the Adirondack wilderness, and one of the scariest ghost stories in history are all part of Mr. Vinton's extensive repertoire. You will have to judge for yourselves

which of the fascinating characters and scenarios which come to life in Mr. Vinton's stories are real — and which are merely almost real.

John Vinton has been a professional storyteller since 1977. His repertoire contains over a century and a half of Adirondack history and folklore. Performing primarily in the Adirondacks, he is one of the few storytellers in the United States who serve a regional population with its own stories. Mr. Vinton is a frequent guest on radio, and a TV documentary about his work is in progress.

Adirondack Stories marks the first time Mr. Vinton will bring the beauty, ruggedness, and humor of the Adirondacks to New York City. To register, please use the adjacent coupon.



John Vinton tells a mountain tale on an Adirondack porch

Adirondack Stories. Thursday, November 29, 7:30 p.m. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$4.00. Associates are entitled to one. All other tickets are \$6.00.

Number of Members' tickets	X \$4.00 \$
Number of non-members' tickets	X \$6.00 \$
Total amount enclosed,	\$

Name _____

Address: _____

City _____ State _____ Zip _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Adirondack Stories*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024. **Mail registration closes November 20.** After that date please call (212) 873-1327 for ticket availability.

Space Shuttle Update

Wednesday, November 14, 7:30 p.m.

Main Auditorium

\$3.00 and open only to Members

How would you like to see the "home movies" of a trip to outer space?

This month, an astronaut from NASA's space program will screen a film for Members which shows some of the experiments and activities performed recently in space aboard the shuttle. The astronaut will discuss some of the exciting scientific research presently underway in space, as well as new research and discoveries the future may

hold which will affect our lives and the lives of future generations.

The more curious you are, the more you will enjoy the presentation, since the astronaut will devote a large portion of the evening to answering your questions.

This program is presented in cooperation with the American Institute of Aeronautics and Astronautics. To register for the program, please use the coupon below.

The Return of Spacelab Wednesday, November 14. This program is open only to Members of the Museum and their guests. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$3.00. Associates are entitled to two.

Number of tickets at \$3.00: _____
Total amount enclosed: \$ _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to Spacelab, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Ban Chiang

Exhibition Opens in Gallery 1 on November 9

The chalice-shaped red-on-buff vessel (top photograph) and bronze bracelet with bells (bottom) are currently on exhibit in the Museum's newest exhibition Ban Chiang: Discovery of a Lost Bronze Age. The exhibition explores a recently discovered early bronze age culture that once flourished in what is now northeastern Thailand.



Behind the Invertebrate Scenes

Saturday, November 3

and Wednesday, November 7

\$7 and open only to Participating, Donor and Contributing Members and their guests

There is still limited space available in this month's Behind-the-Scenes Tour of the Department of Invertebrates, first publicized in your October Rotunda. Members will meet the scientists and peer into their fascinating work.

Harold Fienberg will display a giant bug-eyed isopod, a 40-pound lobster, an armored urchin and other invertebrate favorites.

Members will view the tools and methods of Susan Klofak's trade, as she shows you how to polish fossils, make molds of them, and enhance their appearance in other ways.

Walter Sage will be here with several new collections of mollusks the Museum has recently received, including cowries from all over the world.

Sidney Horenstein will show Members some spectacular invertebrate fossils and discuss the uses of the department's computer system.

Roger Batten will discuss research conducted in cooperation with scientists from the People's Republic of China on the mass extinction of fauna at the end of the Paleozoic period, 245 million years ago.

Please call (212) 873-1327 for ticket availability.

Happenings at the Hayden

Sky Shows

Star Quest. Through November 18. Come take a look at past, present and future conquests of space from the earliest rockets to tomorrow's planetary outposts and flights to the stars. Leonard Nimoy of *Star Trek* fame narrated the sound track. *Star Quest* will be shown weekdays at 1:30 and 3:30 p.m., Saturdays at 11:00 a.m. and hourly from 1:00 to 5:00 p.m., and Sundays, hourly from 1:00 to 5:00 p.m.

The Star of Christmas. From November 21 through January 1. In this magical program, you'll gaze out on a clear winter's night and then travel back nearly 2000 years in time to explore the skies of the first Christmas. What led the Wise Men to Bethlehem? Was it a special star no one had ever seen before? A comet? A rare gathering of the planets? Or something else? The story of how historians, theologians, linguists, and astronomers have worked

together to explore these questions is one of beauty and intrigue.

For time and price information please call (212) 873-8828

Sky show admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member prices please call (212) 873-8828.

Wonderful Sky

Through dialogue, song and audience participation children explore rainbows, sunsets, and distant, sparkling stars in this special Sky Show for children from three to six years of age. This popular show features images of children's favorite Sesame Street Muppets[®], including Big Bird, Oscar, and Cookie Monster. For *Wonderful Sky* information, please call (212) 873-5714.

©1984, Children's Television Workshop; Muppets, Inc.

Admission to the Planetarium includes two floors of

astronomical exhibitions.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

When in doubt, call before coming. All prices and show times are subject to change without notice

Laser Zeppelin and Laser Floyd

Laser visuals and the music of Led Zeppelin combine to create a unique and dazzling experience of sight and sound. Friday and Saturday at 7:30 and 10:30 p.m.

The music of Pink Floyd will be featured on Friday and Saturday evenings at 9:00 p.m. in our new *Laser Floyd* show

Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information about the laser shows, call (212) 724-8700.

Soh Daiko

Saturday, November 17, 12:00 noon and 3:30 p.m.
Kaufmann Theater
\$3.00 for Members, \$5.00 for non-members

In ancient Japanese, "soh" meant "peace, harmony, togetherness." This month the acrobatic drummers of Soh Daiko will display these characteristics in their performance of taiko compositions.

Drawing from Japanese Buddhist, Shinto and secular heritages, the widely acclaimed Soh Daiko will perform traditional pieces as well as contemporary compositions. The drums will celebrate folk festivals, summon dragons, and express day to day aspects of Japanese life.

The only taiko group on the East Coast, Soh Daiko has delighted audiences at many festivals and programs, including New York's Cherry Blossom (Sakura Matsuri) Festival and Buffalo's Annual Ethnic Heritage Festival.

A limited number of tickets are still available for the program. To register, please use the adjacent coupon.

Soh Daiko. Saturday, November 17, 12:00 noon and 3:30 p.m. A limited number of tickets are still available. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to one. All other tickets are \$5.00. Please indicate a first and second choice of times:

_____ 12:00 noon _____ 3:30 p.m.

Number of Members' tickets at \$3.00: _____
Number of non-member's tickets at \$5.00: _____
Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

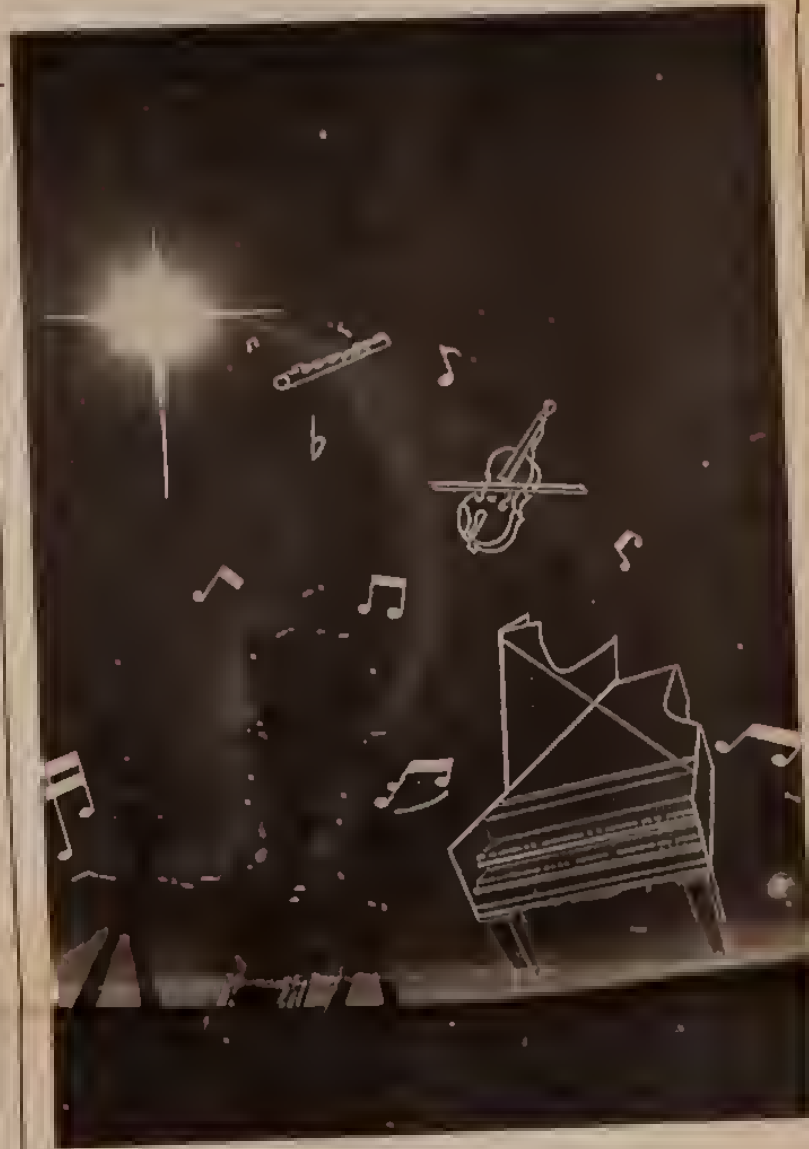
Daytime Phone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: Soh Daiko, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. After November 9, please call (212) 873-1327 for ticket availability.

Bach by Starlight

Thursday, December 13, 7:00 and 8:30 p.m.
Sky Theater
\$5.00 for Members, \$8.00 for non-members



This December you can sit beneath a starry winter sky while the beautiful harmony of Bach's Brandenburg Concerti Numbers 4 and 5 reaches out even to the farthest stars. As the flautists, violinists, and other chamber musicians perform these famous concerti live, you can gaze upward to trace your favorite constellations, or simply enjoy the view as you sit, warm and comfortable, in

your chair in the Hayden Planetarium's Sky Theater.

In addition to the concert, there will be a brief discussion of the astronomy of Bach's lifetime (from 1685 to 1750), and some pointers on what to watch for in the night sky this winter.

Bach by Starlight is presented in collaboration with Music for Occasions, Inc. To register please use the coupon below

Bach by Starlight. Thursday, December 13. Participating, Donor and Contributing Members are entitled to six tickets at the Members' price of \$5.00. Associates are entitled to one. Additional tickets may be purchased at \$8.00 each.

Number of tickets at \$5.00: _____
Number of tickets at \$8.00: _____
Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Bach, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

Gifts for a New Season

For a Special Holiday Gift:

Why not a Penguin, a Panda, a Papoose,
a Mineral, a Meteorite,
A Trip to Outer Space . . .

When you open our doors to your friends and family, you open their experience to the wonders of the natural world around them — past, present, and even future. Where else but at the American Museum of Natural History

can you find a mighty whale, a tall dinosaur, a troupe of Maori dancers and a space station of the future under the same roof?

As a holiday benefit, Members may give gift Memberships at savings of more than

30%. That's just \$12 for an Associate Membership and only \$24 for a Participating one. When we receive your order we will confirm it in writing and send you beautiful cards to announce your holiday gifts.

Your Gift of Membership Includes:

Associate Membership (\$18 but \$12 for you!)

- Natural History magazine for a full year
- Free admission to the Museum (one person)
- Half-price tickets to the Naturemax Theater (one per show)
- Discounts at the Museum shops and the American Museum Restaurant
- Access to the Members' Lounge

Participating Membership (\$35 but \$24 for you!)

- All of the above, plus . . .
- Free admission to the Museum for the family
- Rotunda, the Museum's newsletter
- Half price tickets to Naturemax (six per show)
- Discounts on Education Courses and at Planetarium Sky Shows
- Behind-the-Scenes Tour
- Members only family and evening programs
- Special viewings of exhibitions

YES! A Gift of Membership is a wonderful idea.

Please enroll the following as:

Associate Member (\$12 at the Members' Discount)

Participating Member (\$24 at the Members' Discount)

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

This membership is a gift from:

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

HRTN

Membership category: _____

Enclosed is my check payable to the American Museum of Natural History

Please bill me after the holidays

Save time — order by calling our toll free number:
(800) 247-5470

Holiday Suggestions

Merchandise from all over the world awaits the holiday shopper in search of new interpretations of the usual and suggestions of the unusual. As you read on, keep in mind that Members receive a 10% discount on all shop items!

This year's holiday choices feature handicrafts that complement the artifacts on display in two new exhibitions, *The Margaret Mead Hall of Pacific Peoples* (opening December 14) and *Asante: Kingdom of Gold* (now in Gallery 3).

The Museum Shop's shelves are filled with African crafts, including cotton and silk textiles which make beautiful scarves, sashes and wall hangings (\$12 to \$500), bead jewelry (from \$12.50), handcarved wooden stools once believed to house the spirits of their owners (\$50-\$250), and sculptures traditionally believed to enhance fertility (\$12-\$250). You'll also find musical instruments, and gourds decorated with African scenes.

From the Pacific come Indonesian rangda and garuda masks (\$38 to \$150) that are hand painted and carved of wood, hand painted figures of horses, monkeys, cockatoos, tigers, and other animals (\$20 to \$150), and silver jewelry fashioned with a fast-disappearing granulated silver process practiced in Bali (from \$25).

Book lovers will enjoy browsing through the new second level of the shop, featuring books on every

imaginable topic of natural history, including sea animals, edible plants, anthropology and astronomy.

At both the Museum Shop and the Junior Shops children will find presents to give as well as receive. Animal magnets and pins (for under \$1.00), dinosaur models (\$3.60-\$30), and a juvenile hook section with hundreds of titles offer interesting and affordable gifts.

We would like to list the many other items available in

the Museum shop — but if we listed all of them there would be no space left for anything else in this issue of *Rotunda*! You can view these offerings for yourself by visiting the Museum Shop, just off the 77th Street Entrance, and the Junior Shops, at the subway level and in the 77th Street lobby near the big canoe. Main Shop hours are 10:00 a.m. to 5:45 p.m. Monday, Tuesday, Thursday through Sunday, and 10:00 a.m. to 7:45 p.m. on Wednesdays.



Available at the Museum Shop

Olivia Bauer AMNH



Available at the Museum Shop

Olivia Bauer AMNH



Looking for an unusual stacking stuffer? Astronaut Ice Cream and Astronaut Space Dinner make a festive holiday treat. These items and other interesting gifts are available in the Planetarium Gift Shop, open seven days a week from 1:00 to 4:40 p.m.

Members' Book Bargains

Every year the Museum publishes a comprehensive book catalog featuring the best books from dozens of publishers in all fields of natural history and anthropology. Included are some highly unusual books, limited editions, autographed editions, and others you are unlikely to find in any bookstore.

Members can order these fine hardcover and softcover books at prices that are 10% to 50% less than the publishers' prices.

This page gives you just a small sampling of the many fascinating books and other items available through the Members' Book Program. You can order any of these books, and obtain your free book catalog by using the coupon below.

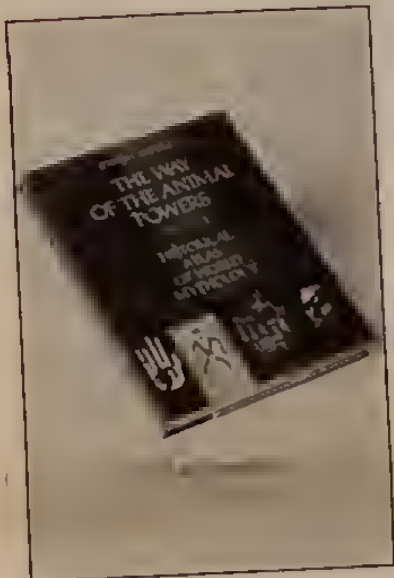
The Way of the Animal Powers

The Historical Atlas of World Mythology, Volume I
Joseph Campbell

The Way of the Animal Powers is a culmination of a life's work. Campbell, one of the world's greatest authorities on mythology, tells the "One Great Story" — an exploration of common themes in mythologies all over the world. In a lucid, far ranging text with peerless illustrations, Campbell explores the dawn of mythic traditions from the rituals of the earliest cultures and the hunter-gatherers to the mythologies of the Paleolithic Great Hunt.

Each volume has been bound with special endpapers, with foil stamped head and spine and French-folded jacket. It contains over 300,000 words, 50 custom-made maps in full color, and over 400 black and white and 175 full-color reproductions.

Your price: \$75.00. Joseph Campbell has agreed to sign a limited number of volumes for the Museum, which we are offering at the same price as unsigned volumes. Order while supply lasts!



Circle of Seasons: Central Park Celebrated

Photographs by
Sonja Bullaty and
Angelo Lomeo

Central Park is, in the words of Paul Goldberger, "the greatest piece of urban landscape architecture ever conceived." Here, two accomplished photographers have captured the Park's myriad landscapes in full color

through the four seasons, creating a photographic portrait of real artistic merit. Olmstead would have approved

Publisher's price: \$35.00
Your price: \$31.50



Two books by Richard Leakey

The Making of Mankind
Origins

These two classic works by the eminent paleoanthropologist Richard Leakey are now available as a set from the Museum at less than half price! In Origins, Leakey draws upon the legacy of his parents, Louis and Mary Leakey, along with his own recent discoveries at Lake Turkana in Kenya. Why our line — Homo — survived while others vanished is the central question of this pioneering study. In The Making of Mankind, Leakey surveys

the entire field of human paleontology. He gives an inside and personal view of his profession, while providing an excellent introduction to human evolution.

Both volumes are hardcover and beautifully illustrated

Publisher's price (set): \$42.00
Your price for set: \$20.00

(Each book may be ordered individually from the Museum for \$12.)



The Lewis Thomas Collection

Lives of a Cell. The Medusa and the Snail. The Youngest Science. Late Night Thoughts on Listening to Mahler's Ninth Symphony

In the past decade, Dr. Lewis Thomas has become celebrated in the English-speaking world for his essays about science. Dr. Thomas is one of our greatest writers, who combines a deep and humane vision with an extraordinary gift for the English language. We are pleased to offer these

four books in hardcover as a set

Publisher's price (set): \$49.60
Your price for set: \$44.00
(Lives of Cell \$10; Medusa and the Snail \$10; Youngest Science \$14; Late Night Thoughts \$12)

Dinosaurs: The 1985 Museum Calendar

A giant wall-sized calendar, over four-and-one-half feet long! Features dinosaurs in splendid color. Painted by Charles R. Knight, considered the world's greatest paleontological artist. Triceratops, duck-billed dinosaurs, battling

camosaurs, brontosaurus — they're all here on this fold-out calendar. Includes sheet chock full of fascinating facts about the dinosaurs

Regular Price: \$7.95
Members' Price: \$7.15

Butterfly Notecards from the American Museum of Natural History

Six delicate species of butterfly, featuring 18th and 19th century hand-colored prints of butterflies from the Rare Book Room of the American Museum of Natural History. Each set of ten notecards

comes with envelopes in its own packet.

The entire set (three packets with ten notecards in each) \$13.50. Each packet. \$4.95.

- ☐ **YES**, I would like to order the following items. Please send me a copy of the complete book catalog, featuring over 50 books in all areas of natural history and anthropology, with discounts up to 50% off the publishers' prices!
- ☐ Please send me the free book catalog only

Title	Qty	Price
Shipping		\$2.40
Total		

Name _____

Address _____

City _____

State _____

Zip _____

Please enclose check (payable to American Museum of Natural History) or charge your credit card account:

☐ MasterCard

☐ Visa

Card # _____

Exp _____

Signature _____

Mail to: Members' Book Program
American Museum of Natural History
Central Park West at 79th Street
New York, NY 10024

Letter from the Field

Birds of Many Feathers Displayed Together: The Renovation of "Biology of Birds"

To your right, as you enter the Museum from Central Park West and push your way through the first floor turnstile, sits a lone dodo bird. Related to the pigeons that populate the streets and parks of our cities and towns, the dodo is one of the many fascinating creatures none of us will ever see alive.

I have fond memories of this bird, which I've always felt was the unofficial mascot of the Biology of Birds Hall. Soon, due to renovations, the dodo will no longer greet visitors to the hall. But have no fear; the dodo will remain — it will merely be moved to another part of the exhibition, as renovation of Biology of Birds continues.

Over the past few months, this hall has been greatly improved. Those of you who remember the hall from past years will no doubt notice these changes during your next visit. However few will know of the decision-making processes, group cooperation, and conservation techniques which made these changes possible.

In this article, Robert Bullock, Senior Preparator in the Department of Exhibition and Graphics, steps out from behind the scenes to share with Members some of the strategies, activities, and philosophies which have shaped the modernization of Biology of Birds.

The Editor

"The Museum of today wants to be not only attractive but also instructive," wrote Ernst Mayr in a *Natural History* article which appeared in June of 1948. The goal of mixing visual aesthetics with valuable information to create a unified whole has remained the same over thirty years later. What has changed are both visitors' and designers' conceptions of what an "attractive" and "instructive" exhibition must contain.

The Sanford Bird Hall, which opened thirty-six years ago, has become a mixture of old and new styles and ideas of Museum exhibition. Located on the first floor near the Planetarium entrance, the Sanford Bird Hall, also called *Biology of Birds*, has recently been the scene of major renovations. As assistant to the designer, I've worked closely with designer Michael Blakeslee since renovation began.

I'd like to take you on a short journey through the mental and physical process of our renovation, and share with you two areas of the exhibition. In particular which have just undergone major renovation — "Families of Birds," a panel presentation, and the nest series, a habitat presentation in the rear of the Hall.

The first step of our renovation of *Biology of Birds* was, of course, to agree there was a reason to renovate! Although as a whole the original exhibition was attractive and informative, several problems needed to be corrected.

In the original exhibition, numbered specimen labels were placed in the midst of a group of birds so that it was not easily apparent which bird a particular label described. In addition, the lettering on the labels was too small to be easily read.

Various alcoves in the hall were devoted to single themes such as bird behavior, evolution or parental care. Each alcove was painted a solid color to emphasize the theme and make it stand out from the others. Over time, however, the colors had faded.

Lights had been placed in top of the cases to illuminate the specimens inside. Over several decades, many layers of dust had accumulated, which cut down the available light. Many of the fixtures were loose and the electrical insulation had become brittle.

The specimens themselves had gathered dust too, and — even worse — insects! Both beetles and moths had found their way into the tightly closed exhibition cases. When left unchecked, beetles ravage the skin of the specimen, and moths destroy the feathers. Clearly renovation was called for.

As designer, Michael would be responsible for ongoing collaboration and fact-checking with the Ornithology Department. Based largely on this collaboration, he was to organize the themes and decide



This Social Weaver nest was transported thousands of miles from the South African veldt to the American Museum of Natural History.

what informational changes were to be made. He would establish project priorities, and redesign the exhibit, segment by segment — creating motifs for the specimen presentations, selecting wall and panel colors, deciding upon specimen layouts, and choosing appropriate typefaces for the labels. What work he himself could not do, he was to assign to other skilled Museum personnel and outside contractors.

As Michael's assistant, I would realize Michael's concepts through scale models, and full-scale brown paper mock-ups. I was to be the main liaison between my department and any other department which needed to be consulted. For instance, after a design was decided upon, I would draw it to scale, consulting with Michael about subsequent changes and with the Construction and Maintenance Department for engineering expertise.

Are You a Skimmer or a Creeper?

To create a successful exhibition, Michael and I had to imagine ourselves in the visitors' shoes, and question ourselves accordingly. As we walked through the hall, would our attention be captured by the exhibit or would we pass it by? If we would pass it by, what did it need to attract us? And if we did spend from five minutes to an hour in the exhibit, what would we come away with?

A visitor, we thought, would fall into one of two categories: the "skimmer" and the "creeper." The skimmer would be moderately interested in the material presented, obtain a minimum degree of familiarity, and move on. The creeper (our favorite sort of viewer, the name notwithstanding) would generally have some background in the subject, and would



Michael Anderson (bottom) and Theodore Anderson (top) perform finishing touches on "Families of Birds"

spend a great deal of time soaking up information in a single area before moving on to the next.

The specimens, we reasoned, are the most important elements in an exhibit; they catch the eyes of both the skimmer and the creeper because of their colorful presentation and organization. The secondary design element, the labels, separate the creeper and skimmer because they contain more detailed technical and scientific information.

Putting ourselves in the visitors' shoes also meant imagining ourselves at different sizes and ages. It was important that an adult over six feet tall and a child under four feet tall both be able to benefit from the exhibition. Accordingly, we placed the most appealing specimens, such as the shore birds and flamingos, low enough for small children to be able to delight in their beauty and color. Other species, more subtle in appearance though no less interesting in their way of life, were placed higher for the discerning adult.

We made the large nest group (more said on this group later) more dramatic by sloping the label panels so the nests could be easily viewed by even the tiniest visitor. This was in sharp contrast to the original presentation, in which labels were placed quite high, and a high floor cut down the viewing angle of all but the very tall.

The cooperative nature of renovation cannot be overemphasized. The Department of Exhibition and Graphics relied on many "team players" to achieve a successful product.

Skilled Museum craftspeople such as painters, carpenters, and metal shop personnel removed old metal and rotted construction. They gave the exhibition cases new walls and new coats of paint. They cleaned out the light fixtures and repaired them, inserting new ultraviolet filters into the existing fixtures. They replaced all broken glass and cleaned the remaining glass. Just prior to the 1983 American Ornithologists Union centennial meeting hosted by the Museum, they painted the entire hall. And these were just a few of their contributions!

Aesthetic considerations, of course, were not the only ones we had in redesigning the exhibition. After all, what's the use of making an exhibition beautiful if it gives incorrect information?

Changing bird populations, new classifications based on research about the biological relationships between different birds, and new theories all contribute to a dynamic body of knowledge. Museum ornithologists Dr. Wesley Lanyon, curator, and Mary LeCroy, Senior Scientific Assistant, were invaluable in assuring the exhibition's accuracy. They helped us update species and common names, and determine which specimens were to remain in the exhibit, and which were to be removed.

Families of Birds

One of the several different exhibits we have concentrated on during the renovation is "Families of Birds," a panel presentation.

In "Families of Birds" the specimens are organized by color. The exhibit contains over 500 species of birds, including quite primitive ones such as moas, songbirds such as larks and orioles, and flightless birds such as the ostrich and the cassowaries.

To complete the exhibit the design team went through several steps. First, bird orders and families were organized according to updated research from the Ornithology Department. We "shadowed" (made

a paper cut-out of) each bird in full scale, and arranged these cutouts on the panel format.

We assigned a color to each order of birds, and a value of that color for each family. For example, the panel containing the storks was painted dark orange for the order Ciconiiformes, an umbrella group containing several families of wading birds, including storks. Other families in this order include the bitterns, herons and ibises. The stork family panel, which contained several species of storks, was then painted a light orange. We thought this type of color coding would help the viewer to grasp relationships among different species of birds.

When renovation began, the majority of the specimens needed to be repaired and cleansed. The birds' bodies were originally fashioned of a core of excelsior and small wood fibers that were wound with string, or they were actually carved in wood. Once a body was completely shaped and wires were pushed into the legs to create feet, an actual bird skin — feathers and all — was draped over the body and the seams sewn up. After the basic reproduction was created, final touches included replacing defective feathers and remodeling secondary body parts such as the turkey's wattle (the flesh adornment which hangs from its neck) out of wax.

Dave Schwendeman, chief taxidermist, headed the team that reconditioned the specimens. First Dave and his assistants dusted off the birds and scraped the flaking paint from their bills and feet. They wet the specimens with gasoline or acetone to remove stubborn grime and kill any insect larvae. While the specimens were moist, they were covered with dry plaster to soak up both the solvent and grime. The plaster was then blown off with carefully controlled air pressure, using an air hose in a spray booth.

If the specimen was particularly dirty or stained, they repeated this procedure. Finally, the finished birds were mounted on a painted and silkscreened panel.

Nests

A habitat group differs from a panel presentation in that it attempts to recreate both the bird and its natural environment. The habitat groups of the Sanford Hall of Birds may prove to be the most difficult displays to rehabilitate.

The original construction drawings for these groups were not available to us, and of the craftspeople who put the groups together in 1948, less than a handful were available for consultation. As a result, we had to speculate about issues such as why the floor of the Social Weaver nest was placed so high, and why guide wires were used for support. Only by a time-consuming analysis and examination of the structure could we begin to formulate ideas.

The habitat groups at the end of the hall include nests of the Osprey, the Social Weaver, and the Crested Oropendola. These birds are quite different from one another, their only relationship being, for our purposes, that they all create unique nests which help illustrate the great diversity among different birds.

The Osprey, a large bird of prey, builds its nest of tree branches and sticks. If you look closely at our Osprey nest, you will even find a piece of shoe leather! Once common throughout the United States, the Osprey is now an endangered species in some states.

The Social Weaver, a bird small enough to fit into your cupped hand, crafts its nest of coarse grass and twigs. Flocks of weaver birds build an enormous "apartment house" in the acacia trees of the South African veldt. (See photo, opposite page)

Crested Oropendolas (related to North American orioles) live in colonies in tropical areas of the Americas. They create baglike nests of plant fibers, leaves and trash, which hang from branches and telephone wires. The nest in the exhibition was found in Trinidad.

Michael and I decided that if we figured out the best way to reconstruct one of the nests, the others would follow suit. As our model, we chose the largest and the most difficult of the nests — that of the Social Weaver.

As with all of our reconstructions, the questions we asked ourselves were as important as the answers. What is there about the weaver nest that makes it so special? How is it best seen from the ground? In order for the nest to stand out, should the background be natural or merely suggestive?

A weaver nest is huge and bulky, measuring up to seven feet high by four feet wide by four feet deep. We placed the nest at approximately the same height as it would be in the wild, so it could be viewed at a similar angle. To accentuate the nest's size, we sloped the original floor so more of the tree was exposed, an angle which seemed to add height and bulk to the nest. The Museum visitor now has a better view of the underside of the nest than the original exhibit allowed.

In tackling the issue of background, we first thought of placing the nest in a natural setting. This realistic approach is exemplified by the habitat groups in the Hall of North American Mammals. Another option was to place the nest in a setting which was suggestive of the bird's natural environment, without attempting to be realistic.

The realistic approach would place more emphasis on the overall environment, of which the weaver nest is a component, while the suggestive approach would emphasize the specimen itself. Both Michael and I felt that the nest was the most important visual element, the nest was what people came to see. We chose the latter approach.

The resulting background graphic was conceived and painted by Steve Quinn, Senior Principal Preparator-Artist. For the weaver nest background, Steve chose an ochre color, suggestive of the African landscape. He used light and dark values of the color to suggest distant trees.

Likewise, this technique was used for the other two nests as well; various shades of blue were chosen for the Osprey exhibit to suggest the distant sky and sea, and the oropendola exhibit was painted in shades of green to suggest a tropical forest.

For the finishing touch, Steve painted a subtle horizon line at the same height in all three background paintings, to bond the three nests together thematically and visually.

After Museum carpenters put the painted walls in place, we cleaned the Weaver nest by spraying it with a detergent solution diluted and combined with a water-soluble glue. The detergent washed the nest while the dried glue bound the nest fibers together. We then touched up the nest with a mist of water soluble paint. Leaves on the branches had to be totally reconstructed out of paper, painted and hand glued to the branches. The branches were then remounted into the nest.

After many months of such work, the exhibit was closed to the public as glass was inserted, and the facade wall was completed. At press time, the nest area is almost complete.

One idea we have for the future is to create a video area in the hall where visitors can watch birds engaged in various activities — similar to the repeating video film shown each day in the Hall of Mollusks and Mankind. Whether this idea will be realized remains to be seen.

For those of you who have already begun to learn about the fascinating world of birds, I hope that the Sanford Bird Hall will broaden your present understanding. For beginners, a stimulating introduction to the world of birds awaits you.

From the inception of a renovation to the end of exhibit construction, we have kept your curiosity and your expectations in mind. Because you, the visitor, are the Museum's most important asset.

Robert Bullock



Dove Schwendeman surveys paper cutouts for "Families of Birds" (l).
A young visitor to "Families of Birds" in 1956 (r)

Seventh Annual Holiday Origami Workshop

Saturday, December 8, School Lunchrooms
Free and open only to Members



Olivia Bauer/AMNH Panda by Kunihiko Kasahara and Natalie Epstein Strawberry by Eric Cooker

Members can learn to make the figures above. No experience is necessary.

Members are once again invited to paperfold to their hearts' delight at our seventh annual Holiday Origami Workshop. Learn how to transform squares of colorful paper into bunnies, teardrops, jumping frogs, star baskets, and beautiful pandas such as the one shown above. Children ages four through six will be instructed to fold their very own swans, foxes, sailboats or candy canes.

No experience is necessary and all materials will be provided, including a small kit of diagrams from *First Steps in Origami*, by Museum origami specialists Alice Gray and Michael Shall.

The workshops will be lead by members of The Friends of The Origami Center of America, as well as volunteer employees of the Museum. They are among the many skilled and talented people who fold the decorations for our celebrated annual Origami Holiday Tree.

To register for the seventh annual Holiday Origami Workshop, please use the adjacent coupon.

Members' Origami Workshop. Saturday, December 8.
This program is free and open only to Members of the Museum and their guests.

I would like to register for the time marked below. (Please indicate a first, second and third choice of times.)

10:30 a.m.	11:30 a.m.	2:00 p.m.
3:00 p.m.	4:00 p.m.	

Number of People for Regular Workshop: _____
Number of Adults and Children for Young Children's Workshop (ages four to six): _____
(Children must be accompanied by an adult.)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

All coupons received by November 20 will be treated on an equal basis. After that date, please call for ticket availability. Please mail with a self-addressed, stamped envelope to: Origami Workshop, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Animals that Live in Poems: The Poetry of Marianne Moore

Wednesday, November 14, 6:00 p.m.
Kaufmann Theater
Free

Another armored animal — scale
lapping scale with spruce-cone regularity until they
form the uninterrupted central
tail row! This near artichoke with head and legs and
grit-equipped gizzard,
the night miniature artist engineer is,
yes, Leonardo da Vinci's replica —
impressive animal and toiler of whom we seldom hear . . . *

The curious creature seen crawling through these lines of poetry is the armored ant-eater called the pangolin. The lines were written by poet Marianne Moore.

Marianne Moore loved to write about animals, and once said of them "They are subjects for art and exemplars of it, are they not? Minding their own business." Accordingly, the pangolin, jerboa, buffalo, snail, and pelican, are just a few of the fascinating animals that have appeared in Ms. Moore's work.

This month, the wondrous, ordinary, fearsome and benign animals in which Ms. Moore confessed "inordinate interest" will come to life in the Museum, as poets John Ashberry, Donald Hall, Brad Leithauser and Grace Schulman read their favorite Marianne Moore poems. The

reading, a tribute to Marianne Moore's 98th birthday, is presented by the American Academy of Poets in cooperation with the Museum's Education Department.

Ms. Moore received numerous honors for her poetry, including the National Book Award and the Pulitzer Prize, and was elected a Fellow and a Chancellor of the American Academy of Poets. She was born in Kirkwood, Missouri on November 15, 1887. She died in New York City at the age of 85.

*Lines from "The Pangolin" are reprinted with permission of the Macmillan Publishing Company from *COLLECTED POEMS* of Marianne Moore. Copyright 1941, and renewed 1969 by Marianne Moore.

American Museum of Natural History

Discover the world with distinguished Museum lecturers on cruises and land tours in 1984. Our 30th year conducting superb travel vacations. Congenial companions. Entertaining and educational trips. Meticulous arrangements. Call (212) 873-1440 or write for information.

Please send information on the 1984 tours checked:

- ☐ South Pacific Odyssey March 8-22
- ☐ Adriatic and Aegean Adventure May 15-31
- ☐ China: the Ancient Silk Route May 23-June 14
- ☐ Art and Archeology Tour to Tibet and China June 14-July 12
- ☐ Alaska Wildlife Adventure June 28-July 15
- ☐ Galapagos Islands Cruise July 22-August 8
- ☐ East African Safaris (begin Aug. 25 or Sept. 22)
- ☐ Papua New Guinea Adventure Sept. 4-30
- ☐ Aegean and Black Sea Odyssey Sept. 16-Oct. 2

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Detach this form and send it to Discovery Tours, American Museum of Natural History, Central Park West at 79th St., New York, NY 10024. (212) 873-1440

Museum Notes

Special Exhibitions

Asante: Kingdom of Gold. Through March 17, 1985. This exhibit recreates the precolonial splendor of the Asante people and their west African kingdom. The thrust of the show is environmental, with special emphasis on the Asante world view interpreted through more than 800 artifacts from the British Museum, home of the greatest collection of Asante material outside Ghana. Gallery 3.

Ban Chiang: Discovery of a Lost Bronze Age. November 19 through January 6, 1985. This exhibit presents the first comprehensive view of a recently excavated, previously unknown highly innovative society at Ban Chiang in northeast Thailand, and other related sites. Outstanding examples of red-on buff pottery, bronze tools, ornaments and weapons; rare glass beads and jewelry will be displayed. Gallery 1.

1984 Origami Holiday Tree. November 19 through January 6, 1985. A magnificent display of the delicate art of folding paper, featuring dinosaurs, elephants, jellyfish and much, much more. A delight for both children and

adults. Roosevelt Rotunda, second floor.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films,

lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m.

to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

There are several independently operated garages within walking distance of the Museum.

Museum Information

Museum Hours Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours.

Daily from 11:00 a.m. to 4:45 p.m. The Food Express now has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays 3:30-7:00 p.m. Saturdays, Sundays and most holidays noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following programs and events:

- ☐ December is Celtic People Month in the Leonhardt People Center.
- ☐ March: Chubb Skeletons are coming. Look for them in your February Rotunda

Africa at the Museum

In celebration of the opening of *Asante: Kingdom of Gold* in Gallery 3, November is Africa Month at the Museum. African dance, music, art, history and mythology will be interwoven throughout the month. In addition to the weekend People Center programs listed in this issue's calendar, two weekday programs and a weekend lecture will be offered by the African American Program of the Department of Education.

On Sunday, November 4, at 2:00 p.m. Dr. Ardyn Boone will discuss "The Feminine Eye in Kumase: Asante Women and their Arts." The last of the Asante lecture series described in the October Rotunda, this session will focus on the role of Asante women in art and daily life. Dr. Boone will speak of the Queen Mother, ruler of

women, priestess of the moon and patron of the arts, and the role of visual arts in Asante life. This free lecture will take place in the Kaufmann Theater.

On Wednesday, November 7, at 7:30 p.m. the Main Auditorium will fill with rhythm and movement as Dinizulu and his African Dancers, Drummers and Singers perform traditional court dances of the Asante people of Ghana. Among the dances to be performed are the Kwesi Ade (Dance of Strength), the Apo (Celebration Dance), and the Bamaya (Dance of Gaiety and Dignity).

Free tickets for the dance program will be distributed beginning at 5:00 p.m. near the first floor information desk. Only ticket holders will be admitted. For further information, please call (212) 873-1300, ext. 514.



This Asante woman's smock, currently on exhibit in Gallery 3, is covered with protective talismans encased in cloth and leather.

Sun

Mon

Tue

Wed

Thu

Fri

Sat

November 1984

4 1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. Asante Textiles: Traditional Asante Music. Leonhardt People Center. Free.

2:00 p.m. The Feminine Eye in Kumasi: Asante Women and Their Arts. Kaufmann Theater. Free. Page 11.

Moon is at apogee (farthest from the earth at 252,100 miles)

11 11:30 a.m.-5:00 p.m. Native American Film Festival. Documentary films on Native American and Inuit peoples. Kaufmann Theater. Free.

1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. African Female Pottery and African Gourd Instruments. Leonhardt People Center. Free.

2:00 p.m. N.Y. Shell Club. Room 419. Free.



5 7:00 p.m. The Dance of Brazil by William Moore and the The Roots of Brazil. Lecture Demonstrations. Main Auditorium. Free.

6

7 Members' Behind the Scenes Tour of the Department of Invertebrates. Tickets required Page 4.

7:30 p.m. Dinizulu and his African Dancers Auditorium. Free. Ticket required Page 11.

7:45 p.m. Amateur Astronomers Association. Kaufmann Theater.

13 7:00-8:30 p.m. Bronze Ages of Asia Lecture Series begin. Registration required. For information please call (212) 873-7507.

14 6:00 p.m. Reading of Marianne Moore's Poetry. Kaufmann Theater. Free. Page 10.

7:30 p.m. Space Shuttle Update. Members' Evening Program. Auditorium. Reservations required. Page 4.

19 7:00 p.m. Boquine de Los Angeles Negros with Folkloric Group Magambo. Lecture Demonstration. Main Auditorium. Free.

20 8:00 p.m. N.Y. Entomological Society. Room 319. Free.

Moon is at perigee (nearest to the earth at 225,400 miles)

19 7:00 p.m. Boquine de Los Angeles Negros with Folkloric Group Magambo. Lecture Demonstration. Main Auditorium. Free.

18 1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. See November 17.

2:00 & 4:00 p.m. Adesanya Adeyeye Traditional African Music & Dance Ensemble. Kaufmann Theater. Free.

2:00 p.m. N.Y. Turtle & Tortoise Society. Room 129. Free.

2:00 p.m. N.Y. Paleontological Society. Room 426. Free.

25 1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. Continuing: Heritage of a Hairstyle with Quassia Tuku and Wand. Games and songs from slavery days with Karen Hamilton. Contemporary instruments and music with African-influenced with Andrei Strobert. Leonhardt People Center. Free.



28

29 2:00 p.m. Wild Flowers of New York. Gallery Talk. Assemble at first floor Information Desk. Free.

7:00 p.m. Trinidadian Traditional Music and Dance Lecture Demonstration. Main Auditorium. Free.

7:30 p.m. Mountain Stories. Members' Family Program. Guggenheim Space Theater. Tickets required Page 3.

1 2:00 p.m. Cultures of the North Pacific Coast. Gallery Talk. Assemble at first floor Information Desk. Free.

7:00 p.m. Systematics Discussion Group. Room 419. Free.

3 Members' Behind the Scenes Tour of the Department of Invertebrates. Tickets required. Page 4.

11:00 a.m. N.Y. Map Society Room 129. Free.

1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. Asante Textiles: Traditional Asante Music. Leonhardt People Center. Free.

8 2:00 p.m. Coastlines: Animals Along The Shore. Gallery Talk. Assemble at first floor Information Desk. Free.

Full Moon

Penumbral Lunar Eclipse

10 11:30 a.m.-5:00 p.m. Native American Film Festival. Documentary films on American Indian and Inuit peoples. Kaufmann Theater. Free.

1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. African Female Pottery and African Gourd Instruments. Leonhardt People Center. Free.

9 Ban Chiang: Discovery of a Lost Bronze Age. Exhibit opens today in Gallery 1

16 Last Quarter (half moon)

15 2:00 p.m. Native Americans of the Plains. Gallery Talk. Assemble at first floor Information Desk. Free.

7:00 p.m. Music and dance forms of Brazil. Main Auditorium. Free.

17 1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. Anansi Stories and Ghanaian Proverbs with Kwame Nkromah. Leonhardt People Center. Free.

12:00 and 3:00 p.m. Saiko. Special Members' Program. Kaufmann Theater. Tickets required.



22 New Moon

Total Solar Eclipse

Happy Thanksgiving! Museum Closed.

24 1:00-4:30 p.m. Africa Month. Africa: Crafts, Music & Continuing Traditions. Continuing: Heritage of a Hairstyle with Quassia Tuku and Wand. Games and songs from slavery days with Karen Hamilton. Contemporary African-influenced instruments and music with Andrei Strobert. Leonhardt People Center. Free.

30 First Quarter (half moon)

American Museum of Natural History

POTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol 9, No 10 December 1984



Ritual Dance Mask from New Ireland

The Margaret Mead Hall of Pacific Peoples

Exhibition opens Friday, December 14

Special Members' Preview Sunday, December 9

A Samoan village, temple dancers of Bali, and the aboriginal burial rites of the snake clan from central Australia are just a few of the fascinating exhibits included in the Museum's newest permanent hall.

Dedicated to Dr. Margaret Mead, an anthropologist who devoted much of her life to studying the cultures of the Pacific Islands, the *Hall of Pacific Peoples* will feature the lifestyles and artistic expression of each of the six major cultural areas of the Pacific. Visitors will hear indigenous music of Australia, Indonesia, the Philippines, Melanania, Micronesia and Polynesia.

Among the 1,488 artifacts on exhibit will be a dowry of goods a Manus bride wore on her back for delivery to

her groom's family. Larger items on display include a casting of a 12-foot high head from Easter Island and an elaborately carved Maori storehouse. Smaller items include cooking utensils from the everyday life of Pacific peoples.

Visitors will learn about the uses of coconuts and betel nuts throughout the Pacific Islands, the manufacture and decoration of batik cloth, and the effects of trans-Pacific contact with western cultures.

Margaret Mead once referred to the cultures of Pacific peoples as "a world that once was and is now no more." Prior to her death in 1978, she approved the basic plans for the new *Hall of Pacific Peoples*.

Five days before the hall opens to the public, there will be a special Members' preview. After strolling through the new hall at your own pace, Members will see Jean Rouch's film entitled *Portrait of a Friend*. Like the exhibition, the film pays tribute to the work and the life of Dr. Mead. To register for the Members' Preview, please use the coupon on page 2.

In further celebration of the new exhibition hall, Dr. Mary Catherine Bateson, Margaret Mead's daughter and an anthropologist in her own right, will speak about her book, *"With A Daughter's Eye"*. For details about this program, which is open to all Museum visitors, please turn to page 9.

An International Year

From Antarctica to the Arctic, from South America to Central Park West, 1984 has been a year of exciting research conducted by Museum scientists, and far-reaching programs created for the public.

Pages 6 and 7

Bach and the Sky

The beautiful strains of Bach's Brandenburg Concerti and Pachelbel's Canon in D await Members beneath the starry winter sky of the Hayden Planetarium. This live program will include a brief discussion of astronomy during Bach's time.

Page 8

Kwanzaa

"Kwanzaa" means "the first fruits of harvest" in the East African language of Kiswahili. Kwanzaa is also a unique African-American holiday. This year, Kwanzaa will be celebrated at the Museum in dance, music, children's theater, African crafts and much more.

Page 9

An Anthropologist's Eye

Dr. Mary Catherine Bateson is the daughter of Margaret Mead and Gregory Bateson. She is also an anthropologist in her own right. Join her this month as she talks about her acclaimed book *With A Daughter's Eye*, and shares aspects of her life and memories with Museum visitors.

Page 9

The Evolution of Dance in the Dominican Republic

Thursday, December 6, 7:00 p.m.
Main Auditorium
Free



La Cofradia performs "Baile de las Congas del Espiritu Santo"

The vibrancy of Dominican culture is due in part to the blending of religions and ideas from different parts of the world. This month, a multimedia presentation will explore the relationship between the Catholic religion and the African pantheon in the Dominican Republic.

The demonstration includes performances of rituals, chants, and dances, such as "La Sarandunga," a ritual in

honor of St. John the Baptist, in which the African-influenced dances of Captant, Bomba and Jacana are performed. Other African-derived forms to be demonstrated include Palos, Congo and Ga-Ga.

La Cofradia, a music and dance company dedicated to Afro-Dominican and Creole traditions, will perform Creole and popular styles. The performers will place special

emphasis on dance forms that were derived from the religious cult practices of Luases, an Afro-Christian belief system.

Ethnomusicologist Marie Guiardinu will give the accompanying lecture. Ms. Guiardinu is a Professor of Musicology and Ethnomusicology at Mercy College.

For further information about this program, call (212) 873-1300, ext. 514.

ROTUNDA

ISSN 0194-6110

correction:

The credit line for the front page photograph of the November *Rotunda* was unintentionally omitted. The editor wishes to thank Homer Williams for the use of his excellent photograph.

Vol. 9, No. 10
December 1984

Henry H. Schulson — Manager of Membership Services
Ruth Q. Leibowitz — Editor
Angela Soccadato — Designer
Susan Meigs — Copy Editor
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This Balinese shadow puppet is covered with gold leaf.

Members' Preview of the Margaret Mead Hall of Pacific Peoples. Sunday, December 9. Please indicate a first and second choice of times. After December 3 please call (212) 873-1327 for ticket availability.

10:00 a.m.-12:00 p.m.
12:00-2:00 p.m.
2:00-4:00 p.m.

Number of people: _____

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Pacific Peoples, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.

Festival of Snow

Films for Children
Wednesday, December 26, 11:00 a.m., 1:00 p.m.
and 3:30 p.m., Kaufmann Theater
Free and open only to Members



Those sweltering summer days are long gone. Soon the wind will howl, and snow will fall. Children of all ages can enter into a dazzling white world of snow in our *Children's Winter Film Festival*.

How do animals survive in the snow? In *A Divided World*, children will visit a quiet forest in North America, where animals' eyes gleam in the night in a cold, snow-filled world. *Penguins of the Antarctic* will introduce children to the lives of remarkable birds

that live in a terrain where snow and ice never disappear.

How do people survive in the snow? *How to Build an Igloo* brings children to the Arctic, where they can watch the construction of an igloo from start to finish. In *Creation of Birds* a Micmac Indian legend from Quebec comes to life in splendid animation, as beautiful birds are created for the delight of a young girl following a harsh winter season.

To register, please fill out the coupon below.

Festival of Snow, Wednesday, December 26. This program is free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00. Please indicate a first and second choice of times:

11:00 a.m. 1:00 p.m. 3:30 p.m.

Number of tickets _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *Festival of Snow*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024. Mail Registration closes December 19. After that date, please call (212) 873-1327 for ticket availability.

Members' Tour of the Month

Asante: Kingdom of Gold

Free and open only to Members
See coupon for dates and times



A backward-facing sankofa bird decorates this Asante brass vessel

View the precolonial splendor of the Asante people and their west African Gold Coast Kingdom in a special Members' tour of the exhibition *Asante: Kingdom of Gold*. The tour will immerse you in the Asante kingdom as you view more than 800 artifacts exclusively loaned to us by the British Museum.

You will see intricately carved stools fashioned from a single block of the pale wood, osese, elaborate woven textiles that tell the rank and status of their owners, and brass weights used as counterweights to measure gold dust. Many of these weights are associated with African proverbs such as that of the backward-facing sankofa bird, who reminds people not to be afraid to turn back and undo past errors.

The tour will also feature the regalia, jewelry and attire of the Asantehene (the Asante king) and his court.

All tours are led by volunteer guides from the Museum's Highlights Tours program. To register, please use the adjacent coupon.

Members' Tour: Asante: Kingdom of Gold.

Please indicate a first, second and third choice of times. Registration closes December 24

Wednesday, January 9	6:00 p.m. 7:00 p.m.
Saturday, January 12	10:45 a.m. 11:15 a.m.
Wednesday, January 16	6:00 p.m. 7:00 p.m.
Wednesday, January 23	6:00 p.m. 7:00 p.m.
Sunday, January 20	10:45 a.m. 11:15 a.m.
Sunday, January 27	10:45 a.m. 11:15 a.m.

Number of people _____

Name _____

Address _____

City _____ State _____ Zip _____

Daytime Phone _____

Membership category _____

Please mail with a self-addressed, stamped envelope to: *Asante Tour*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024

Violence in the Skies

Tuesday, January 29
6:00 and 7:30 p.m.

The Hayden Planetarium

\$2.50 for adults, \$1.50 for children

Open only to Members

On a clear night, the sky can appear peaceful and unchanging. Yet at each moment throughout the universe there are forces at work that stagger the imagination.

In a special Members' screening of the Planetarium's newest Sky Show, *The Violent Universe*, you will travel through our dynamic and fascinating universe to see everything from black holes to exploding galaxies and the birth of the cosmos. Vincent

Price's recorded voice narrates the program.

Several members of the Hayden Planetarium's production staff will be on hand with examples of artwork and special effects devices that are used to create the Planetarium's Sky Shows. Other members of our staff will be available to answer your questions about astronomy.

To register for *The Violent Universe*, please use the coupon below.

The Violent Universe. Tuesday, January 29 This program is open only to Participating, Donor and Contributing Members and their guests. Tickets are \$2.50 for adults and \$1.50 for children. Please check your time preference:

6:00 p.m.

7:30 p.m.

Number of children's tickets	X \$1.50	\$
Number of adults' tickets	X \$2.50	\$
Total amount enclosed		\$

Name:

Address:

City

State

Zip

Daytime Phone:

Membership category:

Make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Violent Universe, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024



Stellar material from a red giant star falls into a black hole gravity well in *The Violent Universe*

Courses for Stargazers

Astronomy

Introduction to Astronomy.

A course designed to introduce the many interesting things in the universe to persons with no math or physics background. Mondays beginning January 7. 6:30-8:40 p.m. \$70 (\$63 for Members).

Stars, Constellations and Legends. An introduction to the lore of the sky. Thursdays beginning January 10. 6:30-8:10 p.m. \$50 (\$45 for Members).

Life Beyond the Earth — The Search for Life in the Cosmos. This course presents the reasons why a large number of scientists believe that there is intelligent life elsewhere in the universe. Mondays beginning January 7. 6:30-8:40 p.m. \$70 (\$63 for Members).

Stars, Galaxies, Black Holes, and Cosmology. An introduction to the findings and concepts of modern astrophysics as they relate to the evolution of the universe. Thursdays beginning January 10. 6:30-8:40 p.m. \$70 (\$63 for Members).

Aviation

Ground School for Private and Commercial Pilots. Introduction in preparation for the FAA written examination for a private or commercial license. Will also help as a refresher for Biennial Flight Reviews. Tuesdays and Thursdays beginning January 8. 6:30-8:40 p.m. \$175 (\$157 for Members).

Ground School for Instrumental Pilots. Intended for those planning to take the FAA written examination for an instrument license. Tuesdays and Thursdays beginning January 15. 6:30-8:40 p.m. \$175 (\$157 for Members).

Meteorology

Clouds, Rainbows and Weather. This basic course will focus on cloud and atmospheric phenomena. Tuesdays beginning January 8. 6:30-8:40 p.m. \$50 (\$45 for members).

Navigation

Navigation in Coastal Waters. An introduction to piloting and dead reckoning for present and prospective owners of small boats. Tuesdays beginning January 8. 6:30-8:40 p.m. \$95 (\$85 for Members).

Electronic Navigation and Communications. A basic course for those interested in learning about marine electronic navigation and communications. Mondays beginning January 7. 6:30-8:40 p.m. \$70 (\$63 for Members).

Piloting for Sailboat Operators. This course draws upon and reviews material covered

I would like to register for the following Planetarium course(s):

Course: _____ Price: _____

Class beginning: _____

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail this registration coupon and a check payable to the American Museum-Hayden Planetarium to: The Hayden Planetarium, Central Park West at 81st Street, New York, NY 10024. Mail registration will be accepted until December 24. After that date, please call 873-1300 ext. 206 for information. In the event that a student withdraws from a course, a fee of \$10.00 and charges for sessions attended will be made on all refunds of tuition. No refunds can be made after the second session. Courses may be cancelled without prior notice, with full refund of tuition.



Children explore constellations, black holes and galaxies in a children's course at the Planetarium

in **Navigation in Coastal Waters** and is geared to the sailboat navigator with some experience who wishes more information on position determination techniques and methods. Wednesdays beginning January 9. 6:30-8:40 p.m. \$95 (\$85 for Members).

Introduction to Celestial Navigation. For those who have completed *Navigation in Coastal Waters* or who have equivalent piloting experience. Thursdays beginning January 10. 6:30-8:30 p.m. \$95 (\$85 for Members).

For Young People

Introduction to the Sky. Designed for parents and children to discover together the beauties of the sky. This course assumes no previous knowledge of astronomy, and together with the other basic courses for young people will serve as excellent preparation for the Boy Scout merit badge in astronomy. May be taken by children age ten and over without a parent, if desired.

10 Saturdays beginning January 12. 12:00-12:50 p.m. \$25 (\$22.50 for Members).

The Solar System. Intended as a family course, so that parents and children may learn together about astronomy and the space age. May be taken by children age ten and over without a parent, if desired. Ten Saturdays beginning January 12. 10:30-11:20 a.m. \$25 (\$22.50 for Members).

Stars, Black Holes, and Galaxies. Topics to be discussed include historical astronomy, evolution of the cosmos, and star types. May be taken by children age ten and over without a parent, if desired. Ten Saturdays beginning January 12. 9:30-10:20 a.m. \$25 (\$22.50 for Members).

To register for one or more courses, please use the adjacent coupon. For additional information, please call the Hayden Planetarium at (212) 873-1300, ext. 206.

The Last Sailors

Tuesday, January 15, 7:30 p.m.
Main Auditorium
Free and open only to Members



A sailor from Maldives harnesses the wind (left) and Chilean community members gather around their lancha chilota (right)

Aside from a knife and a few fishhooks, not a single piece of iron or steel can be found on board the Brazilian jangada, a simple wooden boat that is virtually identical to those built 400 years ago when Portuguese fishermen arrived in Brazil. The life of the jangadiero, or fisherman, has always been a difficult one, but at least he's always had his catch.

Today the jangadiero's basket is becoming empty. "There are fewer fish in the ocean," he says. His home-made clothing, thatched-hut settlements, and hand-twisted rope are anachronisms in a country veering quickly into the modern age.

The jangadieros and other sailors around the world who struggle to gain sustenance from the sea much as their ancestors did hundreds, even thousands of years ago, are a dying breed. Within several decades ships like the Sri

Lankan oruwa, the Brazilian jangada, and the Bengali shampan may sail no more.

Members can step into this vanishing world of seafaring, boat building, and fascinating lifestyles, as director Neil Hollander shows and speaks about his film *The Last Sailors: The Final Days of Working Sail*. During a two-year voyage aboard a ten-meter-long sailboat, Neil Hollander and photographer Harald Mertes traveled 25,000 miles — living, working and speaking with men who harness wind, water, and centuries of knowledge to gain their livelihoods.

Hollander and Mertes are now collecting traditional sailing vessels for the Museum of Traditional Sail, sponsored by the National Maritime Historical Society.

In *The Last Sailors* you will see men who work six days a week for up to fourteen hours a day, transporting bricks and

livestock, or fishing in the searing sun or fierce winds. Many of them proudly craft the boats they sail in, boats which may be mended hun-

dreds of times in a sailor's lifetime.

Mr. Hollander will introduce and answer questions about this beautiful film, which is

narrated by Orson Welles. To register for this unique program, please use the coupon at the bottom left-hand corner of the page.

DINE WHERE THE WOOLLY MAMMOTHS ROAM.

Discover the West Side's newest dining surprise. The American Museum Restaurant in the Museum of Natural History. The food's great. The bar's big. And the fun is all natural.

American Museum Restaurant

American Museum of Natural History
Central Park West & 79th Street 874-3436
LUNCH Mon-Fri 11:30 AM-4:00 PM
AFTERNOON TEA Every day 4:00 PM-5:00 PM
DINNER Wed-Fri Sat 5:00 PM-7:30 PM
BRUNCH Sat & Sun 11:30 AM-4:00 PM
Free Admission to Museum after 5 PM Fri & Sat

The Last Sailors. Tuesday, January 15, 7:30 p.m. This program is free and open only to Members. Participating Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00.

Number of tickets _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to *Last Sailors*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Year In Review

The American Museum of Natural History is a window to the world. Walking through our halls, you can gaze across an African plain one moment and peer into a pre-Columbian world the next. Our vast collections represent one of the most comprehensive libraries of the world's faunas, cultures, and mineral treasures. A journey to our storage areas will uncover dinosaur bones from the Gobi Desert, ancient textiles from the tip of South America, and colorful Birds of Paradise from New Guinea.

In this *Year in Review* we have chosen to highlight the Museum's global scope. On these two pages you will find scientists whose research takes them to every continent, both through the journeys they make and the specimens they study. The research of our some 200 scientists and assistants is the building block for everything we do here at the Museum, enabling us to extend a world scope to our exhibitions, programs and publications.

We are pleased to present this *Year in Review* to our Members. It is your support along with the support of corporations, foundations and governmental agencies that enables us to carry on the research described here, and all our other wide-ranging programs and activities.

Antarctica

■ Dr. Martin Prinz (Mineral Sciences) and his research group have been studying a large number of new meteorites, collected recently from Antarctica. This continent is a rich resource of new material from outer space. Study of some of these recently-discovered meteorites has led to new insights into the "reconstruction" of their parent planets. The research team has been particularly active in studying pieces of a small planet made up primarily of basaltic rocks. The mineral compositions of these meteorites even give clues about the size of the parent planet, which is thought to have measured 200 miles across.

■ Dr. Judith Winston (Invertebrates) is continuing her study of bryozoans, microscopic colonial creatures which are polymorphic. While some bryozoans have adaptations for feeding, others have adaptations for reproduction or various other life functions. Dr. Winston's main interest is in a group called the avicularians whose "specialty" in the colonial colony is still under investigation. Under a microscope these creatures resemble a bird's head on a stalk, and are thought to serve a defensive function for the colony. The National Science Foundation has provided funding for Dr. Winston to travel to the Palmer Station in the Antarctic Peninsula to study and collect bryozoans which, although larger in the Antarctic than anywhere else, are still too small to be seen by the naked eye.

Asia

■ Guy G. Musser (Mammology) is continuing research on the extinct and extant fauna of rodents on the island of Sulawesi in southeast Asia. The southwestern peninsula of Sulawesi is now largely deforested due to urbanization and clearance for rice fields. However, subfossil fragments from southwest Sulawesi including the skulls, jaws, and teeth of various rodents, have been identified as belonging to species which are part of the primary forest ecosystem. This indicates that the southwestern portion of Sulawesi was once covered by primary forest, much as central Sulawesi is today.

■ In cooperation with scientists from the Peoples Republic of China, Dr. Roger L. Batten (Invertebrates) discovered a gastropod and coral fauna in the uppermost Permian layer of the northwestern Sichuan Province. It is the youngest Permian layer known anywhere in the world. The diversity of life represented is as great as that found in the lower and middle Permian of the southwestern United States — radically changing the concept that the extinction of various species in the Permian period (from approximately 286 million to 245 million years ago) was gradual. Rather, evidence now points to a sudden, catastrophic mass extinction. Such evidence is reinforced by the analysis of clay at the exact boundary of the Permian and Triassic periods at a number of sites in southern China. Chinese sci-

Key: Museum scientists are traveling to and researching materials from numerous areas of the globe. In alphabetical order, Museum departments are designated as follows: Anthropology (A); Entomology (E); Herpetology (H); Ichthyology (Ic); Invertebrate Paleontology (In); Mammology (M); Mineral Sciences (Mi); Ornithology (O); Vertebrate Paleontology (V). Areas shown on this map are approximate, and Antarctica is not included.

entists have found indium in this clay, which could have resulted from the impacts of gigantic meteorites. The presence of dust from these meteorites in the earth's atmosphere might have caused radical climactic changes that led to mass extinction.

■ Dr. Jared Diamond (Research Associate, Ornithology) conducted field studies in five isolated mountain ranges of Indonesian New Guinea. A small collection of distinctive birds, including four new subspecies, resulted from the trip. In the Kumawa Mountains, the highest and most remote of the unexplored mountain ranges in New Guinea, Diamond discovered a distinctive avifauna, including a population of the Vogelkop Gardener Bowerbird *Amblyornis inornatus*, a bird which constructs and decorates its bowers in a manner strikingly different from other known populations of the species.

Australia

■ Fieldwork by Dr. Richard H. Tedford (Vertebrate Paleontology) resulted in a new reconstruction of the late Cenozoic history of the Lake Eyre Basin in Australia. Tedford integrated field observations with studies of Landsat satellite and aerial photography, documenting the persistence of arid conditions in interior Australia during the Pliocene and Pleistocene episodes. This contrasts with the popular notion that conditions were more humid during this time period.

Europe

■ Dr. Neil H. Landman (Invertebrates) is conducting research on ammonite fossils from Poland, Germany and the U.S. Ammonites are externally shelled cephalopods which became extinct about 65 million years ago. The nautilus, their closest living relative, dwelled in the same waters and at the same time as the ammonites — yet the nautilus has survived until the present day. Why did one group of

animals survive while the other died out? The reason, says Landman, probably has to do with the nature of the young of both species. When young ammonites hatched, they fed on plankton in the surface waters. Newly hatched nautiluses, however, were as much as 25 times larger than their ammonite "cousins" and probably began swimming in deep water at birth. A darkening of the earth's atmosphere due to the crashing of a meteorite (see an explanation of this under "Asia") may have greatly reduced photosynthesis among the plant plankton, depriving the baby ammonites of their food source. New evidence along these lines may disprove the popular theory that increasing predation led to the ammonites' disappearance.

North America

■ The remote desert of Baja Norte, California, yielded important new discoveries of fossil vertebrates during fieldwork by Dr. Michael J. Novacek (Vertebrate Paleontology). 50 million years ago the Baja Peninsula was a few hundred miles south of where it is today. One might have expected that the fauna of this time would be quite different from that of the Rocky Mountain region, or of the Arctic region. Novacek's identification and analyses of specimens yielded a Baja fauna that is remarkably similar to that of more northern regions, adding to the evidence for a much more uniform climate 50 million years ago than today.

■ Norman I. Platnick (Entomology) is continuing to research spider systematics and biogeography. Five spider species that have aroused his interest were, until quite recently, thought to be native to the United States. They are now known to be of Mediterranean origin, spread inadvertently throughout the world by people. This knowledge came too late to prevent these spiders from being redescribed by mistake some twenty-seven times from different



areas in the Americas, Africa, and Asia.

■ Dr. George F. Barrowclough (Ornithology) has launched a study to analyze the genetic structure of Lesser Snow Goose populations of the Canadian Arctic. He is using computer simulations and population genetics models to predict future changes in the ratio of one polymorphic form (blue-colored geese) to another (white-colored geese) over many thousands of breeding generations. Such projections will help test theories about the magnitude of gene flow and whether avian populations in general can be assumed to be in equilibrium.

Central America

■ Working on boats and on foot in Panama, Dr. Charles Myers (Herpetology) and his team have collected over 200 specimens of *Dendrobates pumilio*, a tropical frog which excretes poison through its skin to protect itself from predators. He is collaborating with Linda R. Maxson (Herpetology) on studies of albumin evolution in these frogs. Albumins are complex proteins found in tissue, blood, and muscle. Studies of frog blood albumin may yield important information on the interrelationships among various species of tropical frogs.

South America

■ The discovery of a tiny fish, one of several new freshwater species collected in the Rio Negro of Brazil, sparked the curiosity of Dr. Gareth Nelson (Ichthyology) who wonders "Is it or is it not an anchovy?" One way to tell is to see if it has an anchovy-type "snout," a complex organ which Nelson believes may be electroreceptive, helping schools of anchovies to navigate. So far, Nelson has found no snout, but this doesn't mean the creature has none. This fish is so small (with a maximum length of about one inch) that greater magnification

is required to study its structural details.

■ No discussion of South America would be complete without mention of the Museum's participation in the Cerro de La Neblina Expedition. An isolated sandstone mesa known as Neblina, rising 9,000 feet out of Venezuela's remote southern tropics, was the site of this international cooperative effort led by the Venezuelan scientific community and sponsored by many agencies, including the National Science Foundation and the William H. Phelps Foundation. Scientists from the Departments of Herpetology, Ornithology, Ichthyology, Mammology, and Entomology have returned with thousands of exciting specimens which will be useful in classification and in testing and developing concepts about evolution. The expedition received major science news coverage, leading to articles in *Newsweek*, *German Geo*, and several other magazines.

The Caribbean

■ No, fish do not sign up for the armed forces. But when a fish that previously floated around in a planktonic larval stage or other juvenile form becomes an adult, its entrance into a community of adult fish is called "recruitment." With support from the National Oceanic Atmospheric Administration, Drs. C. Lavett Smith and James C. Tyler (Ichthyology) have begun a study of the factors controlling recruitment in coral reef fish communities. They have collected large numbers of many kinds of larval fishes in the Salt River Canyon off St. Croix. Most of this collecting took place at night when planktonic larvae were abundant near the sea floor. Smith believes that many of the factors controlling recruitment are operative only during the early stages of development, when juvenile fishes first arrive on the reef. While no one knows what makes juvenile fish transform into adults, two primary "suspects" are light and water motion.

Africa

■ Dr. Enid Schildkraut (Anthropology) has spent the past eight years researching women and children in northern Nigeria. Three new papers from this research are currently in press. Their topics include widowhood among the Hausa of northern Nigeria, children's entrepreneurial activities, and the impact of legal reform on Muslim Nigerian women. Schildkraut has also devoted a great deal of time during the past year to organizing the Asante exhibition and symposium, and to the recent visit of the Asantehene and his entourage to New York.

At the Museum

■ While scientists abroad were collecting and observing in the field, and scientists at the Museum were analyzing data, testing theory, and observing animal behavior, other Museum personnel were working to bring the latest in the biological, social, and physical sciences to you, the public.

Nothing better exemplified the Museum's global scope this year than the landmark exhibition *Ancestors: Four Million Years of Humanity*. The exhibition brought an international array of scientists to the Museum, along with the human fossil treasures of their homelands. The scientists spent two weeks comparing the fossils before placing them on public display. *Ancestors* marked the first, and possibly the only time for so much of the evidence of human origins and evolution to be gathered in one place at one time.

■ The Department of Education celebrated its centennial this year. Educational offerings included a lecture series on evolution by Ernst Mayr, a symposium on ice age hunters, ecology boat trips along the Hudson River, the Margaret Mead Film Festival, and several programs centered around the *Ancestors* exhibition. In addition, more than 23,000 children visited the Museum to benefit from the Department's school programs. A look through any issue of *Rotunda* will tell you of the many exciting programs and courses offered throughout the year.

■ Through programs, tours and family events, the Membership Office continued to introduce Members to wonders of the natural world and to the Museum's remarkable resources. Highlights included Jane Goodall's talk on the relationship between chimpanzee mothers and daughters, the New York premiere of the acclaimed wilderness film *Miles to Go*, *Behind-the-Scenes Tours* of the Department of Mineral Sciences, and a family program with Museum scientist Michael Klemens on the life and times of the turtle. The world was brought home to Members each month through *Natural History Magazine*, containing articles ranging from arctic pollution to the shepherds of Transylvania.

■ The Hayden Planetarium reaches beyond earthly and international boundaries to explore astronomy and the past, present and future of space exploration. Almost 350,000 visitors enjoyed shows under the great domes of the Sky Theater. This year's shows explored UFO's, the extinction of dinosaurs, and the history of space exploration. Turn to pages 4 and 8 for some of the Planetarium's exciting programs during the next few months.

■ None of the Museum's outstanding temporary or permanent exhibitions would be possible without the countless hours of labor and study provided behind-the-scenes by the Department of Exhibition and Graphics. 1984 saw the opening of three major temporary exhibitions at the Museum: *Silk Roads/China Ships*, *Ancestors: Four Million Years of Humanity*, and *Asante: Kingdom of Gold*. In addition to mounting temporary exhibitions, the department also masterminds the renovation of permanent exhibitions such as *Biology of Birds* (see "Letter from the Field," November *Rotunda*) and the creation of new exhibition halls such as the Margaret Mead Hall of Pacific Peoples (page 1).

The Annual Report

Still curious? Find out even more about the Museum's activities throughout the year by ordering an annual report. Write to the Office of Public Affairs, AMNH, 79th Street and Central Park West, New York, NY 10024.

Happenings at the Hayden



Who were the three wise men, and what was the Star of Bethlehem?

Sky shows

The Star of Christmas
Through January 1. In this magical program, you'll gaze out on a clear winter's night and then travel back nearly 2000 years in time to explore the skies of the first Christmas. What led the Wise Men to Bethlehem? Was it a special star no one had ever seen before? A comet? A rare gathering of the planets? Or something else? The story of how historians, theologians, linguists, and astronomers have worked together to explore

these questions is one of beauty and intrigue.

Sky show admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children. For non-member prices please call (212) 873-8828.

Admission to the Planetarium includes two floors of astronomical exhibitions.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

Wonderful Sky

Through dialogue, song and audience participation children explore rainbows, sunsets, and distant, sparkling stars in this special sky show for children from three to six years of age. This popular show features images of children's favorite Sesame Street Muppets[®], including Big Bird, Oscar, and Cookie Monster. For *Wonderful Sky* information, please call (212) 873-5714. To register for special show times, please use the adjacent coupon.

1984, Children's Television Workshop, Muppets, Inc.

Wonderful Sky Saturday mornings at 10:00 a.m. Children: \$1.50 Adult Members: \$2.75. Adult non-members: \$3.75. Please indicate a first and second choice:

January 5	April 6
February 2	May 4
March 2	June 1

Number of Adult Tickets (Member)	X \$2.75 \$
Number of Adult Tickets (Non-member)	X \$3.75 \$
Number of Children's Tickets	X \$1.50 \$
Total Payment Enclosed	\$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum-Hayden Planetarium and mail with a self-addressed, stamped envelope to: *Wonderful Sky*, Hayden Planetarium, Central Park West at 81st Street, New York, NY, 10024. All ticket orders must be received two weeks prior to show date.

Laser Zeppelin and Laser Floyd

Laser visuals and the music of Led Zeppelin combine to create a unique and dazzling experience of sight and sound, Friday and Saturday at 7:30 and 10:30 p.m.

The music of Pink Floyd will be featured on Friday and Saturday evenings at 9:00 p.m. in our *Laser Floyd* show.

Admission for Participating, Donor and Elected Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information about the laser shows, call (212) 724-8700.

When in doubt, call before coming. All prices and show times are subject to change without notice.

Bach by Starlight

Thursday,
December 13
7:00 and 8:30 p.m.
Sky Theater
\$5.00 for Members,
\$8.00 for
non-members

This month at the Hayden Planetarium, you can sit warm and relaxed beneath a starry winter sky and listen to a live concert of some of the most beautiful music that's ever been written: Bach's Brandenburg Concerti Nos. 4 and 5, his Trio Sonata No. 2 in C Minor, and Pachelbel's Canon in D.

While you are surrounded by this harmonious music performed by the *Music for Occasions* nine-piece ensemble

you can gaze at constellations, planetary motions, a stunning sunset, a beautiful moonscape, and eclipses of the sun and moon, as these images and special effects appear on the dome of the Sky Theater.

The program will include a discussion of astronomy during Bach's lifetime. To register, please use the adjacent coupon. After December 8, please call (212) 873-1327 for ticket availability.



Bach by Starlight. Thursday, December 13. Participating, Donor and Contributing Members are entitled to six tickets at the Members' price of \$5.00. Associates are entitled to one. Additional tickets may be purchased at \$8.00 each.

Please indicate a preference of time:
7:00 p.m. 8:30 p.m.

Number of tickets at \$5.00: _____

Number of tickets at \$8.00: _____

Total amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please make your check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Bach*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Kwanzaa Experience

December 27 to December 29
See schedule of events below
Free

"Kwanzaa" means "the first" or "the first fruits of the harvest" in the East African language of Kiswahili. In the United States, Kwanzaa is a festive time of celebration and gift-giving, a unique Afro-American holiday dedicated to the African ancestry of present-day black Americans.

Observed from December 26th through January 1st, Kwanzaa is based upon the Seven Principles: unity; self determination; collective work and responsibility; cooperative economics; purpose; creativity; and faith.

Each day of Kwanzaa is dedicated to one of the Seven Principles. Families discuss the meaning and importance of the day's principle and light a candle in the kinara, a traditional symbol of Kwanzaa.

This unique Afro-American holiday was founded in 1966 by Dr. Maulana Ron Karenga, a black studies professor, and cultural black nationalist. For the past five years Kwanzaa has been publicly celebrated by the New York Urban Coalition.

Join this year's Kwanzaa celebration at the Museum from December 27 to December 29, when Museum visitors are invited to attend the following free programs:

December 27

Regeneration Ceremony. A dramatic portrayal of the handing down of traditional values and leadership to the youth of the community. Performances by the Forces of Nature Dance Company (under the direction of Abdul Salaam), Chuck Davis Dancers, and Brothers Unique. 7:30 p.m. in the Main Auditorium.*

December 28

Lecture/Demonstrations on Steel Drum Tuning, Drum Carving and the History of Drum Making, and Comrowing. Featuring Herman Johnston, Mensa Dente and Waridi McNeal. 1:00 to 4:30 p.m. in the People Center.

Afro-Caribbean Dance. Workshop Demonstration with Pat Hall. 1:15, 2:15, 3:15 p.m. in the Blum Classroom. Registration is required and starts at 12:00 p.m. outside the Kaufmann Theater.

Tie Dyeing Workshop with

Juanita Munoz. 1:00 to 4:30 p.m. in the Calder Lab. Registration is required and starts at 12:00 p.m. in the Calder Lab.

Continuous Films. 1:00 to 5:00 p.m. in the Linder Theater.

Children's Theater Program. 2:00 and 4:00 p.m. in the Kaufmann Theater. Tickets are required, and can be obtained at the first floor information desk starting at 12:00 p.m.

African and Afro-Caribbean Music and Dance Presentation. 6:00 and 7:30 p.m. in the Kaufmann Theater. Tickets are required, and can be obtained at the first floor information desk starting at 4:00 p.m.

December 29

African Textiles, Jazz Music from New Orleans to Swing, and Kwanzaa Ritual: How To Celebrate. Lecture Demonstrations with Carmen Lowe, Montego Joe and Quassia Tukulu. 1:00 to 4:30 p.m. in the People Center.

Tie Dyeing Workshop with Juanita Munoz. 1:00 to 4:30 p.m. in the Calder Lab. Registration is required and will take place in the Calder Lab starting at 12:00 p.m.

Afro-Caribbean Dance with Pat Hall. 1:00 to 4:30 p.m. in the Blum Classroom. Registration is required and will take place at the Kaufmann Theater starting at noon.

African Folktales with Sandra Smith. 2:00 and 3:30 p.m. in the Linder Theater.

African and Afro-Caribbean Music and Dance. 2:00 and 4:00 p.m. in the Kaufmann Theater. Tickets are required and will be available starting at 12:00 p.m. at the first floor information desk.

For further information about any of these free programs, please call (212) 873-1300, ext. 514. These programs are co-sponsored by the New York Urban Coalition.

*Tickets for this program may be ordered by mail. For free tickets send a self-addressed stamped envelope and a note stating the program title and the number of tickets being requested to Caribbean/African American Programs, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024

With An Anthropologist's Eye

A Lecture by Mary Catherine Bateson
Friday, December 14, 7:30 p.m.
Main Auditorium
\$5 for Members, \$6 for non-members

Margaret Mead was a pioneer in her field. She introduced insights and ways of seeing that are characteristic of cultural anthropology into American culture. In a lecture this month, her daughter, Dr. Mary Catherine Bateson, considers this approach and what it implies for the way Americans will view themselves and their world in the future.

Dr. Bateson's recent book, *With A Daughter's Eye*, published by William Morrow, is a very personal look at the lives of her parents, Margaret Mead and Gregory Bateson. At the same time it expresses the personal experiences of the author and provides a perspective on the field of anthropology.

Advance tickets will be sold at a special desk in the Roosevelt Rotunda on Sunday, December 9 between 10:00 a.m. and 4:00 p.m. Tickets may also be purchased on the evening of the lecture, beginning at 6:00 p.m.

This event is presented jointly by the Museum's Department of Education and the Institute for Intercultural Studies in celebration of the new Margaret Mead Hall of Pacific Peoples. For additional information, call (212) 873-7507



Dr. Mary Catherine Bateson

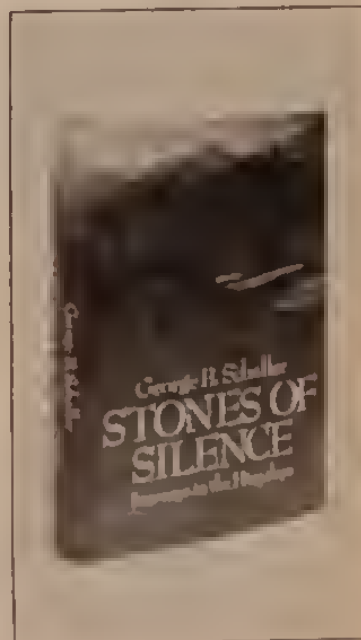
Stones of Silence

an \$11.00 Savings:
For Members Only

Over a period of six years, George B. Schaller explored the great Himalayan range to study the fascinating but increasingly rare wildlife of that area, and to determine what locations would make good preserves and national parks. Dr. Schaller chronicles his remarkable journey in *Stones of Silence*. It is a story of high adventure, introspection, close observation, and startling discovery. This splendid hardcover book includes color photographs and informative sketches and essays.

The Museum has been fortunate to acquire a limited number of these books at a special price. We can offer our Members an incredible savings of \$11.00 per book while the supply lasts. Priced at \$15.95, Museum Members may purchase *The Stones of Silence* for only \$4.95, plus \$1.00 to cover postage.

To order, send your check made out to Members Book Program, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Orders will be filled as long as supply lasts.



Circles and Starbursts

Sunday, January 20
11:00 a.m., 1:00 p.m.
and 3:00 p.m.
Free and open only to
Members



Kim Hamilton

Members are invited to transform themselves into forests filled with animals, munching insects, plants, thunder and lightning as well as other natural wonders in *Circles and Starbursts*, our January family program.

Geared for ages 4 through 8, this participatory theater demonstrates the secret workings of the planet Earth. Using storytelling, movement, audience participation and a grab bag filled with trunks, *Circles and Starbursts* celebrates the magic of being alive.

You will join in "Ballet of Air," revel in "The Magic Rainstorm," and move to the beat of "The Dirt Dance." After these and other special treats, it is on to the grand finale — "The Symphony of the Seasons" — which will guide you through the seasons from one winter to the next.

Circles and Starbursts has been performed in schools, museums, parks and street fairs in twelve states. It is conducted by performer and educator Mike Weilbacher, who has been working in and creating children's theater for the past seven years. His shows have been sponsored by the National Wildlife Federation and the Conservation Education Association, among others. He currently teaches at the Academy of Natural Sciences in Philadelphia.

To register for this unique program, please use the adjacent coupon.

Circles and Starbursts Sunday, January 20 This program is free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00. Please indicate a first and second choice of times:

11:00 a.m. 1:00 p.m. 3:00 p.m.

Number of tickets

Name

Address

City

State

Zip

Daytime Phone

Membership category

Please mail with a self-addressed, stamped envelope to *Circles*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Who Gives a Toot?

A Children's Concert
Sunday, December 16
3:00 p.m.
Kaufmann Theater
Free

In a special musical program designed to appeal to young people, the Bloomingdale Chamber Orchestra, conducted by Martin Rutishauser, will perform at the Museum this month. Music lovers of all ages are invited to this free concert,

which is presented by the Department of Education.

Seating is on a first-come, first-served basis, and Members are advised to arrive early to avoid disappointment. For additional information about this event, please call (212) 873-1300, ext. 248.

Love and Marriage Korean Style

Tuesday, December 4, 7:30 p.m.
Main Auditorium
Free and open only to Members

This month Dr. Laurel Kendall, a curator in the Museum's Department of Anthropology, will explore the rituals of old-style and new-style weddings in Korea. Members will view slides of the *churye* (respected elder), *sahoe* (emcee), *sinbra* (bride),

and *sillang* (groom) in both traditional and modern contexts.

Dr. Kendall will present information gathered in her recent fieldwork and from both ancient and modern books of Korean etiquette. She will discuss how Christi-

anity, changes in women's roles and economic status, and modern ideas of love and marriage have combined with old-style tradition to create the unique Korean marriage ceremonies and practices of today.

For ticket availability, please call (212) 873-1327.

American Museum of Natural History offers two luxury educational cruise programs in 1985:

**Adriatic and Aegean
Adventure**
May 12 to 28, 1985

**Black Sea and Aegean
Odyssey**
September 18 to October 4, 1985

Join Dr. Thomas D. Nicholson, Director of the American Museum, and other outstanding lecturers as we retrace the natural and cultural history of the Adriatic, Aegean and Black Sea. Share discussions and insights with expert archeologists, astronomers, geologists and naturalists while at sea and on land. Our ship is the M.V. *Illiria*, a true luxury vessel with only 68 cabins but all the amenities of the finest cruise liners. Intimate, compatible groups, meticulously designed itineraries, and outstanding scholars are all combined to provide the most luxurious and enlightening cruise program.

Name:

Address:

City:

State:

Zip:

Detach this form and send it to Discovery Tours, American Museum of Natural History, Central Park West at 79th St., New York, NY 10024. (212) 873-1440

W

Museum Notes



Make origami part of your holiday celebration this winter. Origami scenes like the one above decorate the foot of our beautiful holiday tree, whose baughs and branches hold paper-folded dinosaurs, birds, insects, and many surprises. The origami tree will be on display in the first floor lobby through January 6. Created by Museum volunteers and the Friends of the Origami Center of America.

Special Exhibitions

Asante: Kingdom of Gold. Through March 17, 1985. This exhibit recreates the precolonial splendor of the Asante people and their west African kingdom. The thrust of the show is environmental, with special emphasis on the Asante world view interpreted through more than 800 artifacts from the British Museum, home of the greatest collection of Asante material outside Ghana. Gallery 3.

Ban Chiang: Discovery of a Lost Bronze Age. Through January 6, 1985. This exhibit presents the first comprehensive view of a recently excavated, previously unknown highly innovative society at Ban Chiang in northeast Thailand, and other related sites. Outstanding examples of red-on-buff pottery, bronze tools, ornaments, weapons, rare glass beads, and jewelry will be displayed. Gallery 1.

1984 Origami Holiday Tree. Through January 6, 1985. A magnificent display of the delicate art of paperfolding featuring dinosaurs, elephants, jellyfish and much, much more. A delight for both children and adults. Roosevelt Rotunda, second floor.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative

"discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free

after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

There are several independently operated garages within walking distance of the Museum.

Museum Information

Museum Hours Monday, Tuesday, Thursday, Sunday 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays 3:30-7:00 p.m. Saturdays,

Sundays and most holidays noon-5:00 p.m. In addition, the Lair will be open on December 26, noon-7:00 p.m. and December 27 and 28, noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following programs and events.

□ January is Pacific Peoples Month in the Leonhardt People Center.

□ March: *Chubb Skeletons Animals in Motion*. Read about it in your February issue.

□ April: *John James Audubon Science Into Art*. An exhibit marking the 200th anniversary of his birth.

Maya: Treasures of a Lost Civilization. Works of art illustrate the great achievements of the ancient Maya.

Sun

Mon

Tue

Wed

Thu

Fri

Sat

December 1984

2 1:00-4:30 p.m. Celtic People Month. Leonhardt People Center. Same as December 1. Free

Moon is at apogee (farthest from the earth at 251,100 miles)

3

4 7:30 p.m. Love and Marriage Korean Style. Special Members' Evening Program. Auditorium. Free and open only to Members. Tickets required. Page 10.

5 7:00 p.m. Monasteries and Mountains of Tibet. Slide Lecture by Edwin Bembaum. Main Auditorium. Free. For information call (212) 873-7507.

6 2:00 p.m. The Polatch of the Northwest Coast Indians. Gallery Talk. Assemblable at first floor Information Desk. Free
7:00 p.m. The Evolution of Dance in the Dominican Republic. Auditorium. Free. Page 2.
7:10 p.m. Systematics. Discussion Group. Room 419. Free

7

8 10:30 a.m. Seventh Annual Members' Origami Workshop. School Lunchrooms. Free and open only to Members. Advance registration required. Call 212-873-1327

1:00-4:30 p.m. Celtic People Month. Folk Dances of Scotland and Ireland's Celtic Arts. Leonhardt People Center. Free

Full Moon



The Kinara is lit in celebration of Kwanzaa. See page 9 for details.

9 10:00 a.m. The Margaret Mead Hall of Pacific Peoples. Special Members' Preview. Free and open only to Members. Page 1.

1:00-4:30 p.m. Celtic People Month. Leonhardt People Center. Same as December 8. Free.

2:00 p.m. New York Shell Club. Room 419. Free

17

16 1:00-4:30 p.m. Celtic People Month. Leonhardt People Center. Same as December 15. Free.

2:00 p.m. New York Turtle & Tortoise Society. Room 129. Free

2:00 p.m. N.Y. Paleontological Society. Room 426. Free

3:00 p.m. Who Gives a Toof? Children's Concert. Kaufmann Theater. Free. Page 10

24

23 1:00-4:30 p.m. Celtic People Month. Leonhardt People Center. Free

31

30 First Quarter (half moon)

Moon is at apogee (farthest from the earth at 251,100 miles)

18 8:00 p.m. Entomological Society. Room 319. Free.

Moon is at perigee (closest to the earth by 228,900 miles)

First Day of Hanukkah

19 8:00 p.m. Met Grotto; Nat'l Speleological Society. Room 129. Free.

12 7:30 p.m. New York Mineral Club. Leonhardt People Center. Free

13 2:00 p.m. Animal Diversity. Gallery Talk. Assemblable at first floor Information Desk. Free.
7:00 and 8:30 p.m. Bach By Starlight. Hayden Planetarium Sky Theater. Tickets required. Page 8.

14 The Margaret Mead Hall of Pacific Peoples. Exhibit opens today. 7:30 p.m. With An Anthropologist's Eye: A Lecture by Mary Cathenne Bateson. Auditorium. Tickets required. Page 9.

15 1:00-4:30 p.m. Celtic Dances. Folk songs from Celtic Lands, and Celtic Arts and History. Leonhardt People Center. Free

Last Quarter (half moon)

20 2:00 p.m. African Mammals. Survivors in a Changing World. Gallery Talk. Assemblable at first floor Information Desk. Free.

21 Winter Solstice (Winter begins at 11:23 a.m.)

22 1:00-4:30 p.m. Celtic People Month. Leonhardt People Center. Free

25

Christmas Day. Museum closed

26 11:00 a.m., 1:00 and 3:30 p.m. Festival of Snow: Films for Children. Members' Children's Program. Kaufman Theater. Free and open only to Members. Tickets required. Page 5.

27 7:30 p.m. Kwanzaa Celebration: Regeneration Ceremony. Auditorium. Free. Tickets available by mail. Page 9.

28 1:00-7:30 p.m. Kwanzaa Celebration. Lecture/demonstrations. Participatory workshops, and dance and music programs. Free. Page 9.

29 1:00-4:30 p.m. Kwanzaa Celebration. Lecture/demonstrations. Participatory workshops, and dance and music programs. Free. Page 9.

American Museum of Natural History

POTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History, Vol. 10, No. 1 January 1985



Spewing forth lava, a volcano erupts on Io, one of Jupiter's largest moons, in *The Violent Universe*.

Violence in the Skies

**Tuesday, January 29, 6:00 and 7:30 p.m.
\$2.50 for adults, \$1.50 for children and open
only to Members
The Hayden Planetarium**

The sky, as peaceful and still as it may often seem, is a constantly changing, often explosive place. Join the Hayden Planetarium's production staff at a private Member's viewing of the newest sky show, *The Violent Universe*.

In this new sky show, opening January 4, Vincent Price's recorded voice narrates a journey through the skies, exploring everything from black holes to exploding galaxies. Members will

witness the turbulent birth of our solar system and learn about geological and weathering forces that mold planets and their satellites to this day. You will visit worlds that have hurricanes larger than our entire planet, and volcanoes that dwarf Mt. Everest.

Before and after the show, Members will be treated to a special display of the artwork and special effects devices that are used to create the Planetarium's sky shows, as staff

members explain their creation and their various functions.

A scientist from the Department of Mineral Sciences will be on hand with a selection of meteorites from the Museum's collection.

Prior to the program, Members may help themselves to coffee, tea, or Remy — compliments of *Natural History* and Remy Martin Amenque, Inc.

To register for *The Violent Universe*, please use the coupon on page 2.

The Last Sailors

The stories, lives and legends of a vanishing breed of sailors come to life in this beautiful film directed by Neil Hollander and narrated by Orson Welles.

Page 3

Learning in the Spring

The ancient Maya, the evolution of *Homo sapiens*, music the world over, and earth's most successful animals are some of the fascinating course topics this coming spring.

Pages 6, 7 and 8

Black History

February is Black History Month at the Museum. Preceding it this month is a tribute to Dr. Martin Luther King and a festival of films directed by black artists.

Pages 2 and 11

The Osprey Returns

Ospreys of the Long Island Sound region have made a comeback following successful conservation efforts against the use of DDT. Watch these beautiful birds of prey as they court, build nests, raise young, and catch dinner in the film *Return of the Osprey*.

Page 9

Darwin's Ark

Who says science and art don't mix? Join Philip Appleman as he reads his Darwin-inspired poetry in the Hall of Ocean Life.

Page 9



Mabel King plays Queen Myrthia in the film *Ganja and Hess*.

Black Film and the Directive Image

Three Wednesdays: January 16, 23, and 30
7:00 p.m. Main Auditorium. Free.

An anthology of feature and short films created to inform, define roles, and foster a positive view of self will be presented in the sixth annual Third World Film Festival. All films in the festival are the work of prominent black directors, some of whom will be present to introduce their work. The following films will be featured:

January 16: *The Spook Who Sat by the Door* (1973). Director, Ivan Dixon. Introduction by Tony Gittens of the Black Film Institute.

Based on a novel by Sam Greenlee, this film tells of the first black CIA agent, who organizes a revolution in major American cities.

January 23: *Save the Children* (1973); *And Still We*

Survive (1975). Director, Stan Lathan. Introduction by Stan Lathan.

Save the Children features well-known black performers in concert. Musicians such as Curtis Mayfield, Isaac Hayes, the Temptations, and the Jackson Five were brought together by the Reverend Jesse Jackson to make a commitment, through their art, to the future of black children.

And Still We Survive is a collage of newsreel footage focusing on the Civil Rights Movement of the 1960s.

January 30: *Ganja and Hess* (1973). Director, Bill Gunn. Introduction by Bill Gunn.

This highly acclaimed film tells the story of Dr. Hess Green, a black anthropologist who becomes immortal when stabbed with a disease-

carrying dagger from an ancient culture. The film follows Dr. Green's quest to rid himself of the disease and to deal with the complications of immortality.

This film festival is sponsored by the African-American Program of the Department of Education and Third World Newsreel. It is free and open to all Museum visitors.

The festival is made possible in part by a gift from the Evelyn Sharp Foundation and grants to Third World Newsreel from the National Endowment for the Arts and the New York State Council on the Arts, with additional support from the Film News Now Foundation.

For additional information, please call (212) 873-1300, ext. 514.

ROTUNDA

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The Museum receives substantial support from a number of major sources. We are particularly grateful to the City of New York which owns the Museum buildings and provides funds for their operation and maintenance, and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 300 corporations, 60 private foundations, 460,000 members, and numerous individual contributors. 341

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For news on reptiles and amphibians, turn to pages 4 and 5.

The Violent Universe. Tuesday, January 29. This program is open only to Participating, Donor and Contributing Members and their guests. Tickets are \$2.50 for adults and \$1.50 for children. After January 15 please call (212) 873-1327 for ticket availability. Please check your time preference.

6:00 p.m. 7:30 p.m.

Number of children's tickets _____ X \$1.50 \$ _____
Number of adults' tickets _____ X \$2.50 \$ _____
Total amount enclosed: _____ \$ _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: *Violent Universe*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

The Last Sailors

Tuesday, January 15, 7:30 p.m.
Main Auditorium.
Free and open only to Members



The Chilean Lancha Chilota.

According to legend, long ago a Sri Lankan fisherman was caught in a storm and blown far out to sea in his dugout canoe. He paddled desperately to return to shore, but the wind and waves overpowered him. As the sea finally calmed and the sun appeared, he hung his sarong between his canoe paddles to dry. Suddenly the wind caught the cloth, and the fisherman was blown back to shore. He had discovered that a sail could power his craft faster than he could ever hope to row or paddle.

Stories and legends of people who hoisted sail and set out to gain their livelihood from the sea abound from ancient times. The working sailor today is a disappearing breed, running against the tide of technology and economics. In the few areas of the world where these hardy seamen still follow the traditions of their forefathers, their way of life is in stark conflict with the modern world.

In an attempt to record this vanishing world of seafaring, director Neil Hollander and photographer Harald Mertes spent two years and travelled 25,000 miles to live and work with sailors from around the world. They sailed on the shampans of Bangladesh, which glide like giant ducks across the treacherous Bay of

Bengal to deliver their cargoes of rice and salt. They worked with the Brazilian jangadiros, fishing 15 miles offshore on log rafts fitted with only a primitive sail and steering oar. And they learned how the chilotes of Chile have maintained a pre-Columbian nautical tradition. Members are invited to

share these adventures, preserved in Mr. Hollander's beautiful film, *The Last Sailors: The Final Days of Working Sail*. The director will be present to introduce the film, which is narrated by Orson Welles, and to answer questions from the audience. Please use the adjacent coupon to register.

The Last Sailors. Tuesday, January 15, 7:30 p.m. This program is free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00. After January 8, please call (212) 873-1327 for ticket availability.

Number of tickets: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to *Last Sailors*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Members' Memo New Worlds Await You

During the past year, we have offered an increasing number of programs with the American Museum-Hayden Planetarium. Last year, Members came to special viewings of *Star Quest* and *Wonderful Sky*, listened to NASA astronauts give updates on the Space Shuttle program, and enjoyed Bach's Brandenburg Concerti under the dome of the sky theater.

On the cover of this issue, you are invited to a special opening for the Planetarium's newest sky show *Violent Uni-*

verse. Later this spring, Members will have the opportunity to attend a private viewing of the Planetarium's family show *Max's Flying Saucer*.

As a Participating or Donor Member of the Museum, you are also a member of the Hayden Planetarium. We have increased our space-oriented programming in recognition of your tremendous interest in astronomy and space exploration.

As a Participating or Donor Member, you receive the following Planetarium benefits:

- 25% discount on Planetarium Sky Shows and Laser Shows
 - 10% discount at the Planetarium Gift Shop
 - 10% discount on Planetarium courses
 - Special Planetarium Members' programs
- With the use of new automated computers, the Planetarium's sky shows are more exciting than ever before. In the past, a typical show could have only five or six special effects. Now sky shows can have more than sixty. A few

years ago, the Planetarium may have just shown you a black hole; today you can be taken to the edge of one as it spins before your eyes. As new technology develops, future sky shows may be able to incorporate films, video, and — most exciting of all — laser images.

The Planetarium has also increased the variety of its shows. One of the current sky shows, *Wonderful Sky*, is geared for pre-schoolers. This spring, there will be a new show for jazz lovers, as the

Planetarium presents a special jazz concert beneath the dome.

Best wishes for a Happy New Year. And when you visit the Museum, I hope you'll drop by the Planetarium to discover the new worlds that await you there.

Circles and Starbursts

Sunday, January 20
11:00 a.m., 1:00 p.m., and 3:00 p.m.
Kaufmann Theater
Free and open only to Members

New Additional Shows:
Saturday, January 19, 11:00 and 1:00 p.m.

Our January family program invites Members to participate in a celebration of the magical, life-giving workings of the planet earth.

Circles and Starbursts is a potpourri of dances, tales, and audience participation that explores the four natural wonders that keep us all alive: Air, Water, Earth, and Sun. The audience will be transformed

into a forest of animals, munching insects, and even thunder and lightning. This unique program will conclude with a journey through the seasons.

Mike Weilbacher will conduct *Circles and Starbursts*, which has been performed in schools, museums, parks, and street fairs in twelve states. Mr. Weilbacher, a performer

and educator, has worked in children's theater for seven years. He currently teaches at the Academy of Natural Science in Philadelphia. His shows have been sponsored by the National Wildlife Federation and the Conservation Education Association, among others.

To register, please use the adjacent coupon.

Circles and Starbursts. Saturday, January 19. This program is free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$4.00. Please indicate a first and second choice of times.

11:00 a.m. 1:00 p.m.

Number of tickets: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to *Circles*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

Local Update

Turtles in the Park

Long-time Rotunda readers may remember a feature article from the January, 1984 issue entitled "Urban Survivors." This article, written by Barbara Sawicz and myself, discussed the involvement of two Museum scientists in studies of Central Park fauna, including fish and herps (reptiles and amphibians). Several species of herps are now known to live in the park. These include bullfrogs, painted turtles, and snapping turtles. Several months ago, a previously unreported creature was noted to have moved in. This is a small part of his story.

It was a cool, crisp September morning when I set out with Michael Klemens (Department of Herpetology) to Belvedere Castle. A turtle of unknown species had been found lumbering along near the weather station adjacent to the castle. As was customary, Belvedere administrator Sally Austin had reported the find to Michael Klemens (Department of Herpetology), who is involved in the Central Park Conservancy's efforts to document the number and kind of animal species in the park.

When Michael and I arrived at Belvedere Castle a large, healthy turtle awaited us in a cardboard box on the lobby counter. The first thing Michael pointed out to us was the thin layer of the algae on its dark shell, a sure giveaway of an aquatic existence.

Michael grasped the turtle by the sides of its shell, turning it over to note its shape and markings. The turtle's strong legs struggled swiftly, pushing against imaginary ground as it strained to get free. It only it could know that not only was no harm intended, but the afternoon's events might render it a minor celebrity among turtles.

What long, skinny toenails this turtle had — at least an inch and a half long. For a good idea of scale, imagine yourself sporting fingernails that are almost as long as your hand (fingers included)! I wondered momentarily if such toenails would not impede the creature's locomotion. But then I remembered that this turtle spent most of its time in the water, where toenails don't count for much one way or another — except when it comes to mating.

Long toenails on a turtle, Michael informed us, are, for certain species of aquatic turtles, a sure indication of the male sex. The male uses his toenails to woo the female by performing pre-copulatory rituals.

First, the male swims in front of the female, facing her. He extends his front feet toward her head. If she is feeling receptive toward him, she stops swimming. He rapidly vibrates his long toenails on top of her head. The turtles may then fall downward together, and copulate afterwards.

For those of you interested in pursuing this topic a bit further, the Museum's Hall of Reptiles and Amphibians contains an exhibit case which shows a male and female red-eared turtle (*Chrysemys scripta elegans*) in the beginning stages of courtship, as well as two copulating box turtles (*Terrapene carolina*).

Another way to tell the sex of a turtle is to note the position of the cloacal opening on its tail. For a female, this opening is below the edge of the carapace (top shell), while in a male, this opening is further toward the tip of the tail, so that the penis can be extruded. The male's tail is also longer and thicker than that of the female, to house said organ.

The turtle's species was far less obvious than its sex. Even Michael, turtle expert that he is, was not sure. After all, there are over 60 species and subspecies of freshwater turtles known in North America alone.

One of the small group of spectators who had gathered around the turtle asked if this could be a painted turtle. "Definitely not" was Michael's answer. "For one thing, this turtle is about two times larger than a full-grown painted turtle. He has an upturned nose; painteds do not. He also has rugosities (waves) etched into his shell; painteds do not."

Michael's educated guess was that this was a cooter, one of a group of freshwater turtles characterized physically by their large size when full grown, yellow head stripes, dark shell, and the rugosities he had just pointed out to us.

These turtles in the wild are great baskers. On a day that is warm and sunny, cooters and their kin bask in large groups on rocks, tree stumps and roots — with two or three turtles sometimes piled atop one another!

Cooters are generally found south of the Mason-Dixon line. Their name is derived from the word *kuta*, meaning "turtle" in several of the African dia-



Michael Klemens contemplates Cooter #1 while Hector the Collector looks toward the photographer.

lects that were spoken by Southern slaves. In some areas of the country these turtles are called sliders. They are closely related to red-bellied turtles, red-eared sliders and painted turtles, all members of the genus *Chrysemys*.

Knowing a cooter when you see one is only part of the solution. The next question is, what kind of cooter is it? There are several species and numerous subspecies. To distinguish one from another is extremely difficult, since they are capable of interbreeding, and often do.

For further identification we consulted the Conant Field Guide to Reptiles and Amphibians and found a picture and description of a Suwanee cooter which seemed to match this creature well. The Suwanee Cooter has fewer yellow lines in general than other cooters, and none on its hind limbs as do many of its close relatives. The stripe pattern on the top of its head forms neither hairpin markings nor an arrow leading to the snout, as do the stripe patterns of many other cooters (see diagram). Its shell is particularly dark.

The general consensus was that the cooter in our midst (who had calmed down quite a bit since his first few moments of struggle) was indeed a Suwanee. This meant that he was a long, long way from home. The Suwanee cooter's natural range consists of only a small area of western Florida.

Perhaps he was caught to be someone's pet, transported to New York and released into the park when his owner was no longer charmed by his presence. This was potentially an act of cruelty, although the owner may not have realized this. A turtle which has evolved and lived in a warm climate does not have a very good chance of surviving in a cold one.

However, Michael insisted, this turtle certainly might survive. At least one other species of turtle from the southern U.S. has adapted to Central Park because of the relatively mild winter climate of New York City. Due to the buildings, automobiles, dense population, and pollution of New York, winter temperatures in the city are several degrees warmer than in surrounding rural areas.

Since the turtle had a fair chance of survival, and since it would be impossible now to return him to his native home, Michael thought it best to release him back into the park, and to remain optimistic that he would be sighted again the following spring.

Sally opened the book in which she keeps her records of turtle and other animal sightings in the park. Now, in addition to a sighting date and area, and the condition in which the turtle was found, she could enter the animal's sex and species. Next, she needed the turtle's measurements.

Michael used a metal dial caliper to measure the maximum length, width, and height of the Cooter's shell. (8.75" (top), 6.4", and 2.95", respectively). If the Cooter turned up again after his release, he would be remeasured for indications of growth.

The last step before release was marking. While several other turtle species including painted turtles, red-eared sliders, and snappers have been previously marked in Central Park, this was the first cooter to be sighted. He was aptly dubbed Cooter #1.

One way of marking a turtle is to drill small holes in its marginal scutes (the scutes at the shell's edge

— see diagram). I was concerned that this procedure would be painful for the turtle. Michael explained that the edge of a turtle's shell is a peripheral part of living tissue, with a small degree of sensation. "So the turtle will feel the drilling, but it won't be very painful — a little like piercing ears!"

The operation began. Michael took out his small hand drill. I was instructed to stuff a rag under Cooter #1's shell to protect his front legs from reaching forward toward the area to be drilled. I held him down against the table so that he would not run, maiming either himself or our fingers.

I expected somehow that this operation would be an extremely unpleasant experience, to say the least. But it was actually quite swift, taking no more than two minutes. Cooter #1 seemed relatively undisturbed. He received two tiny holes in his shell; one on the second scute to the left of the front center of his shell, the other eight scutes to the right. He had just become the only turtle in Central Park with the "combination" L2R8. Sally recorded the number in her book.

The holes would be excellent field marks. Since Cooter #1 was probably full grown, the tiny holes would not recalcify for many years. But these field markings were not visible at a distance. Larger, more obvious field markings would be needed for park personnel to be able to identify him at a distance, without disturbing him.

For this reason, Cooter #1's shell got a paint job. The only paint available at Belvedere Castle was a bright yellow color left over from a recent new coat of the Castle stairs. Cooter #1 received a gigantic "1" on the back of his shell. Sooner or later, this paint would wear off, and Cooter #1, except for his drill holes, would be almost undistinguishable from any other cooter in the country.

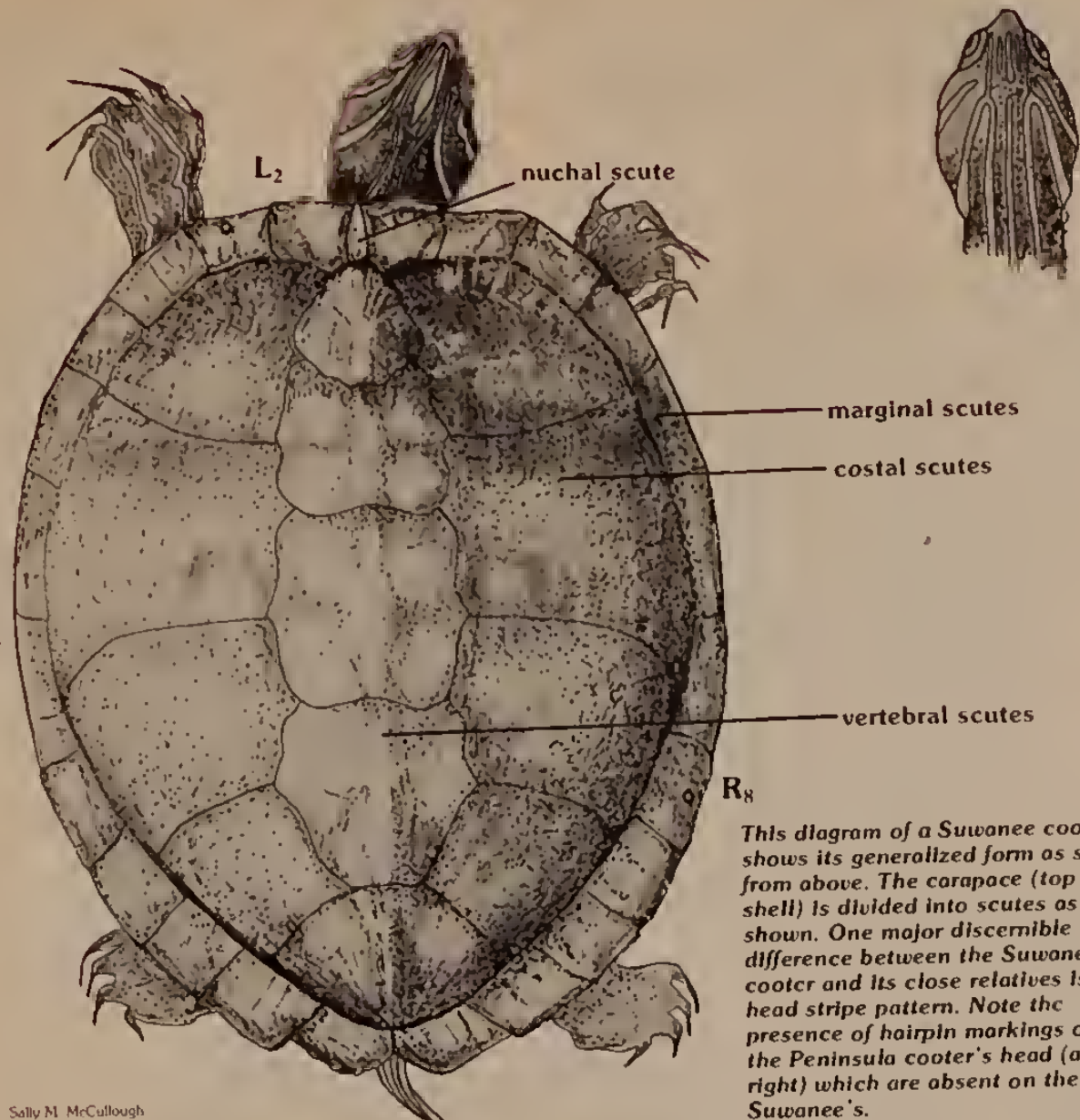
Deciding that the sunlight would do wonders for drying the paint, we took Cooter #1 outside and set him down in front of the Castle. He proceeded down the path at a leisurely pace. Two women, delighted by the sight of this large turtle with its giant yellow "1", followed their immediate impulse to pick him up, and smudged his number. They were apologetic, but we decided this would not do. Cooter #1 was returned to the safety of his cardboard box.

Our lunch hour over, Michael and I returned to the Museum. When the paint dried on Cooter #1's beautiful, dark, wave-etched shell, we would return for his release.

The Release

We returned to the Castle several hours later. The procession to Belvedere lake began. Two children from the Castle and an Urban Park Ranger joined us. As we approached the lake, other inquisitive children who were playing tag in the area ran up to meet Cooter #1. One boy called out, "Ooh, I want it! I'm going to get it!" We told him that the turtle should be allowed to stay in the park, where it would have water to swim in and rocks and logs to sun itself on. But they were not listening and ran off.

We arrived at the lake's edge, below Belvedere Castle, and were greeted by Hector. Hector is an energetic blond boy who is fascinated by animals, and spends a great deal of time by the lake. He is



This diagram of a Suwannee cooter shows its generalized form as seen from above. The carapace (top shell) is divided into scutes as shown. One major discernible difference between the Suwannee cooter and its close relatives is the head stripe pattern. Note the presence of hairpin markings on the Peninsula cooter's head (above right) which are absent on the Suwannee's.

known to the Belvedere staff as "Hector the Collector." An apt nickname, since he too expressed an immediate urge to catch and keep Cooter #1. Michael spent a few minutes with Hector, letting him hold Cooter #1 and explaining to him and several other children who had gathered how important it was for the turtle to be allowed to remain in the lake, which was now his home. Hector seemed dubious. He wanted to stay and watch the release.

We gathered around the rock Michael bent down and leaned forward with Cooter #1. "You'd better be quick!" he warned me, knowing I was yearning to get a photograph of this moment. "He'll disappear in less than a second!" Gently, he lowered the turtle into the water.

Cooter #1 was off like a shot. A few seconds passed, and we spotted air bubbles several yards ahead. We stood at the lake's edge for a few minutes looking for further traces of the turtle's path, but saw none. We turned back toward Belvedere.

On our way, Hector ran up to us smiling and cried out "If I find that turtle I'm going to make turtle soup!" He's a precocious child, and he was no doubt kidding — we hoped. If he'd really taken in

what Michael told him, we mused, Hector the Collector might well become Hector the Protector. "Turtle consciousness has skyrocketed!" was Michael's optimistic comment to me later, on our way back to the Museum.

At Belvedere Castle, Michael, Sally and I took turns gazing out the window high above the lake. It was a matter of mere seconds before Michael spotted Cooter #1 beneath the surface of the water. I stared out the window for five minutes, straining to see what I was destined never to see. "Where is he, Michael?" "There, Ruth!" "Where Michael?" "There Ruth!"

It was hopeless for me. After going on several field trips with Michael, I've learned that a trained herpetologist sees turtles, frogs, snakes and salamanders in places where the rest of us see only light reflected off rippling water, a jagged rock, or peeling bark on a dead tree. It's a good thing for the animals that this is true.

Ruth Q. Leibowitz.



Cooter #1, one second away from freedom.

Members' Tour of the Month

Reptiles and Amphibians



A spiny-tailed iguano. This one hails from Mexico.

What's the difference between an alligator and a crocodile? Why do bullfrogs wrestle? How does the Galapagos Tortoise survive months without food and water? Learn the answer to these and other questions in our Members' Highlights Tour of the Hall of Reptiles and Amphibians.

During the tour you will meet some of the most exotic and remarkable creatures of the animal kingdom: an all-female species of lizard and a brightly colored frog that secretes one of the strongest animal toxins known.

The tour will also include a look at the world's largest lizard, the Komodo dragon, and the world's largest snake, the reticulated python — which can measure up to 32 feet in length.

All tours are led by volunteers of the Museum's Highlights Tour program. Please use the adjacent coupon to register for a tour.

Members' Tour: Reptiles and Amphibians.

Please indicate a first, second and third choice of times. Registration closes January 24

Saturday, February 2	10:45 a.m.
	11:15 a.m.
Sunday, February 3	10:45 a.m.
	11:15 a.m.
Wednesday, February 6	6:00 p.m.
	6:30 p.m.
Wednesday, February 13	6:00 p.m.
	6:30 p.m.
Saturday, February 23	10:45 a.m.
	11:15 a.m.
Sunday, February 24	10:45 a.m.
	11:15 a.m.

Number of people: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Reptiles and Amphibians Tour, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024.

The Department of Education presents the Spring Afternoon and Evening Lecture Series

MAYA CIVILIZATION

Three Tuesday evenings starting February 19
7:00-8:30 p.m.
Fee: \$20 (\$18 for Members)

Three slide-illustrated lectures preceding the opening of the exhibition *Maya: Treasures of a Lost Civilization*.

Feb. 19. **NEW PERSPECTIVES ON THE ANCIENT MAYA** **Charles Gallenkamp**, Exhibition Curator for *Maya: Treasures of a Lost Civilization*, reviews previous ideas concerning the origins and history of the Maya civilization. He discusses the way new discoveries have drastically altered our perspective of fundamental aspects of Maya culture.

Feb. 26. **A REVOLUTION IN ANCIENT MAYA SUBSISTENCE** **Dr. Peter D. Harrison**, Researcher in the Department of Anthropology at the University of New Mexico, presents recent evidence from Pulltrouser Swamp in Belize proving that the Maya had developed complex methods of high-yield food production enabling them to build an empire in the jungle.

March 5. **THE COLLAPSE OF CLASSIC MAYA CIVILIZATION** **Dr. T. Patrick Culbert**, Professor of Anthropology at the University of Arizona, presents the archaeological arguments concerning causes for the abrupt decline of Maya civilization. Archaeological research in recent years has raised sobering questions about the fate of this society.

TWO LECTURES BY DONALD C. JOHANSON

Monday, March 4 and Wednesday, March 6
7:00-8:30 p.m.
Fee: \$15 (\$13.50 for Members)

Dr. Johanson is the Director of the Institute of Human Origins in Berkeley, California. He is best known as co-director of the Afar Research Expeditions which discovered the partial skeleton known as "Lucy" and numerous other fossils assigned to *Australopithecus afarensis*.

March 4. **OUR AFRICAN ANCESTORS: THE FIRST FIFTY YEARS OF DISCOVERY**. Dr. Johanson traces the discovery of human ancestor fossils beginning with Raymond Dart's "Taung Baby" find in 1924 up to the stunning discoveries by the Leakeys in East Africa's Great Rift Valley. In an illustrated presentation, he highlights important sites, fossils and personalities, and offers various interpretations of the human family tree.

March 6. **REDRAWING THE HUMAN FAMILY TREE: NEW EVIDENCE FROM HADAR AND LAETOLI**. In this second lecture, Dr. Johanson presents a detailed consideration of the impact of fossil hominid discoveries from the sites of Hadar and Laetoli. Fossils from these remarkable sites have prompted a major revision of hominid fossil classifications, and precipitated considerable controversy.

ALASKA: GIANT OF THE NORTH

Four Monday afternoons starting February 25
2:30-4:00 p.m.

or

Four Monday evenings starting February 25
7:00-8:30 p.m.
Fee: \$25 (\$22.50 for Members)

Alaska is a land of wild beauty and vast distances. It is a land where bald eagles soar above misty rainforests, where wolves hunt the caribou herds across the rolling tundra, and where enormous bears fish for salmon along countless clear-running waterways. It is a land of contrasts: of huge moose and tiny, delicate wildflowers; smoking volcanoes and awesome glaciers; majestic mountain ranges and deep fjords; a land at once rugged and incredibly fragile. While this lecture series focuses on spectacular wilderness areas and their animal and plant inhabitants, it also includes aspects of Alaskan history and politics, the swiftly-changing economy, and the lifestyles of its native peoples. **Kenneth A. Chambers**, author of *A Country Lover's Guide to*



Sandstone from late classic Mayo culture.

Wildlife, is Lecturer in Zoology at the Museum, and has led all of the Museum's Alaskan wildlife tours.

Feb. 25. **SOUTH-EASTERN ALASKA**. Russian occupation, gold fever, Juneau and other coastal townships, magnificent Glacier Bay.

March 4. **SOUTH-WESTERN ALASKA**. Bears and the Brooks River, the Valley of Ten Thousand Smokes, cliff-nesting birds, the Pribilof Aleuts and the saga of the fur seals.

March 11. **SOUTH-CENTRAL ALASKA**. The renowned wildlife and plants of scenic Denali National Park; Anchorage, Fairbanks, and the Alaska Railroad.

March 18. **ARCTIC ALASKA**. Exploring in the eastern Brooks Range and along the arctic coastal plain; Eskimos today.

ISLAMIC ARTS AND SCIENCES

Six Tuesday afternoons starting February 19
2:30 to 4:00 p.m.

or

Six Tuesday evenings starting February 19
7:00 to 8:30 p.m.
Fee: \$35 (\$31.50 for Members)

Paul J. Sanfacon, Lecturer in Anthropology at the Museum, will bring into focus aspects of Islamic arts and sciences which he touched on briefly in his well-received "The World of Islam" series. Illustrated with color slides of miniatures, illuminated manu-

scripts, and contemporary scenes, this series deals with the ways Islamic civilization benefited from and enhanced Greek, Persian, Roman, Indian and Chinese accomplishments. From Spain to East Asia, Muslim scholars, artists and craftsmen, together with their non-Muslim counterparts, formed at various times a mutually beneficial university of ideas which made possible a vigorous cultural exchange marked by ingenious responses to both the natural and social environments.

Feb. 19. **CALLIGRAPHY, ARABESQUE, AND OTHER DECORATIVE MOTIFS: CERAMICS, RUGS, MANUSCRIPTS, AND OTHER SURFACES**.

Feb. 26. **PAINTING A NARRATIVE: PERSPECTIVE AND COLOR THEORY; RELIGIOUS AND ECONOMIC CONDITIONS FOR ISLAMIC ART; ILLUSTRATIONS FOR LITERARY DEVICES IN PROSE AND POETRY**.

March 5. **ARCHITECTURE: PUBLIC AND PRIVATE SPACE**. Fortifications, Mosques, Markets, and Homes.

March 12. **THEORETICAL AND APPLIED SCIENCES I: MATHEMATICS; ASTRONOMY; GEOGRAPHY; AND NAVIGATION**.

March 19. **THEORETICAL AND APPLIED SCIENCES II: NATURAL HISTORY; PHARMACOLOGY; AND MEDICINE**.

March 26. **THEORETICAL AND APPLIED SCIENCES III: THE MANAGEMENT OF SCARCE LAND AND WATER RESOURCES**. Engineering and Agronomy.

ANTHROPOLOGY ON FILM

Five Thursday evenings starting February 21 7:00-9:00 p.m.
Fee: \$35 (\$31.50 for Members)

Malcolm Arth, anthropologist and an organizer of the annual Margaret Mead Film Festival, has selected films illuminating aspects of cultures here and abroad. From the Sherpas of Nepal and a healing community in West Africa to Indians in Venezuela and a religious sect in the United States, these works explore cultural change, coping with the unknown, and male and female roles. Dr. Arth leads discussion of each film and on several evenings is joined by guest anthropologists and filmmakers.

Feb. 21. **OF GRACE AND STEEL**. 1984 (20 min.) Phyllis I. Jeroslow, Director. An American Sikh women's group.

THE WORK I'VE DONE. 1984 (56 min.) Kenneth Fink, Director. A touching study of retirement revealing work as a core value in American culture.

Feb. 28. **STYLE WARS**. 1983 (69 min.) Tony Silver, Director. An emotionally charged phenomenon in the world of urban graffiti. Guest: Tony Silver.

March 7. **SHERPA**. 1983 (46 min.) Robert Godfrey, Director. A Sherpa family in Nepal, twenty miles from the border of Tibet.

(Second Film To Be Announced.)

March 14. **SPITE**. 1984 (58 min.) Jean Paul Colley and Manu Bonmarriage, Directors. A West African healer studied by French anthropologist Marc Auge. Guest: Marc Auge

March 21. **PANARE**. 1982 (52 min.) Chris Curling, Director. Indians in Venezuela struggle to retain their traditions. Guest: Robert Carneiro.

WILD FLOWERS OF THE NORTHEAST

Five Tuesday afternoons starting February 19 2:30 to 4:00 p.m.

or
Five Thursday evenings starting February 21 7:00 to 8:30 p.m.
Fee: \$30 (\$27 for Members)

Thousands of wild flower species are native to the varied landscapes of the northeastern United States. Some are common, while others are highly specialized and restricted in range. All are part of the web of life, and some function with unusual adaptations. There are insect-trapping bog plants, Arctic creepers on windswept mountaintops and ornate woodland orchids. These, together with a selection of wild flowers of forest, meadow, pine barren, and wetland, are discussed in this series of slide-illustrated lectures by **Helmut Schiller**, Lecturer in Botany at the Museum.

1. What is a wild flower, and how is it put together? Basic structure, family, and environment
2. Wild flowers of mountaintops and northern coniferous forest: above the timberline and in the evergreen woodland below.
3. Wild flowers in moist environments: the deciduous forest.
4. Wild flowers in dry environments: pine barrens and seashores
5. Wild flowers of the wetlands: bogs, marshes, and swamps.

REEDS, HORNS, DRUMS AND GONGS: A SPRING FESTIVAL OF MUSIC

in Association with The Alternative Museum

Three Tuesday evenings starting March 12 7:00 to 9:30 p.m.
Fee: \$25 (\$22.50 for Members)

Three concerts of musical sounds from around the world explore wind and percussion instruments from East and West, modern and ancient

March 12 Host: David Amram: French horn and Native American flute
Tahuantinsuyo: Flute and percussion music of the Andes
Henry Threadgill and Lloyd McNeill: flutes.

Steven Gorn: Bansuri (North Indian flute)
Ralph Samuelson: Shakuhachi (Japanese flute)
San Ang Sam, Sralai, Pey Prabes, Khloy (Cambodian reeds and flutes)
Janet Grice: Bassoon
March 19 Host: To Be Announced
Sudan Baronian's *Taksim*. Middle Eastern jazz with clarinet and percussion
John Vartan: Kaval, Zurna (Turkish reeds).
Bill Ochs: Uilleann pipes.
Ned Rothenberg: soprano saxophone
Robert Dick: bass flute
Badal Roy: North Indian tabla
Armen Halburian: Middle Eastern dumbeg
March 26 Host: To be announced
Trio Chanteclair: Medieval European instruments (sackbuts, cornetts, shawms, cornemuse, recorders).
Barbara Benary, Iris Brooks, Peter Griggs: gamelan (Indonesian metallophones).
Jerome Cooper: balafon (West African xylophone).
Glen Velez: tambourines.
Joe Passaro: mixed percussion.
Ephat Mujuru: mbira (Zimbabwe).
Tsuan-nien Chang: Chinese zheng.
Tim Liu: di (Chinese flute).
George Lee: (Chinese percussion instruments).
Other musicians to be announced.



Stuart Rome Courtesy, Albuquerque Museum

LANDSCAPES FOR TRAVELERS

Six Tuesday evenings starting Feb. 19 7:00 to 8:30 p.m.
Fee: \$35 (\$31.50 for Members)

Landscapes are more than just beautiful cliffed shorelines, undulating plains, and jagged mountains. To the layperson traveling across the country by auto or plane, the great varieties of landforms may seem to be chaotic disarrays of high and low places. The geologist, however, sees orderly arrangements that are easily recognized. This illustrated six-part lecture series, given by **Sidney S. Horenstein**, Senior Scientific Assistant in the Museum's Department of Invertebrates, will give travelers a greater appreciation of their trips. By exploring the origins and subsequent development of landforms they would be most likely to see on a trip across the country, travelers will learn "the story behind the scenery."

Feb. 19. **LANDFORMS OF SHORELINES**

Feb. 26. **LANDFORMS OF PLAINS AND PLATEAUS**

Mar. 5. **LANDFORMS OF MOUNTAINS**
Mar. 12. **LANDFORMS OF VOLCANOES**
Mar. 19. **LANDFORMS OF DESERTS AND CAVES**
Mar. 26. **LANDFORMS OF GLACIERS AND GLACIATION**

THE VARIETY OF JEWRY

Six Monday evenings starting February 25 7:00 to 8:30 p.m.
Fee: \$35 (\$31.50 for Members)

The ingathering of Jews from the Orient and the West in Israel has aroused anthropologists' interests in the comparative study of the different Jewish cultures, family systems, religious leadership and authority patterns. These illustrated lectures bring to light current knowledge on peoples who, until this generation, were only vaguely known to Westerners through unreliable tourist impressions. **Dr. Shlomo Deshen** is Professor of Social Anthropology at Bar-Ilan University in Israel, and President of the Israel Anthropological Association. He has extensive field experience in Israel, and is currently Distinguished Visiting Professor at New York University.

Feb. 25. **THE UNITY AND DIVERSITY OF TRADITIONAL JEWRY**. A historical and ethnographic overview encompassing Jewish societies from Europe, through the Middle East to India and China.

Mar. 4. **WHY DID CHINESE JEWRY ASSIMILATE, AND WHY DID PERSIAN, KURDISH AND OTHER JEWRIES NOT DO SO?** An overview of the position of Jewish minorities in various societies and of the nature of their communities.

Mar. 11. **MOROCCAN JEWRY I: A community composed of many classes led by an aristocracy.**

Mar. 18. **MOROCCAN JEWRY II: The nature of lay and religious leadership, rabbinical nobility and private synagogues.**

Mar. 25. **YEMENITE JEWRY** An egalitarian and familistic society, learned with little schooling

Apr. 1. **JEWS OF SOUTHERN TUNISIA: Shitell people in North Africa**

FORAGING FOR DINNER:

Identifying, Collecting and Preparing Wild Foods

Six Tuesday evenings starting February 19 7:00-8:30 p.m.
Fee: \$35 (\$31.50 for Members)

Get to know the wild plants that have been used for food by people throughout the ages. In this series of lectures with slides and demonstrations, plants are examined, their cultural history noted, and methods of preparing the more common ones are shown. **Dr. Helen Ross Russell**, author of the book *Foraging for Dinner*, has led scores of wild food forages in the metropolitan area.

Feb. 19. **PHILOSOPHY OF FORAGING** Modern foragers, conservation and responsibility, techniques for plant identification: a special look at the rose family.

Feb. 26. **DANGERS AND BENEFITS OF FORAGING** Types of plant poisoning, edible nightshades, mushrooms, sumacs and poisonous beans

Mar. 5. **COOKING, BEVERAGE MAKING AND PRESERVING** Providing for tomorrow: plants appropriate for each technique

Mar. 12. **FLOWERS IN YOUR COOKPOT** Using ornamental plants for food; common, easily identifiable specimens.

Mar. 19. **THAT WEEDY GARDEN!** Identifying and preparing edible wild plants that flourish in gardens.

Mar. 26. **WILD PLANTS IN NORTH AND SOUTH AMERICAN HISTORY**, contributions to Native American cultures and to the cookpots of early settlers.

INSECTS: Earth's Most Successful Animals

Six Thursday afternoons starting February 21 2:30-4:00 p.m.
Fee: \$35 (\$31.50 for Members)

Informal slide-illustrated talks introduce the fascinating world of insects. **Alice Gray**, Scientific Assistant Emerita in the Department of Entomology, discusses structure, life histories, environmental relationships, and the significance of insects to people.

Feb. 21. **INSECTS AND THEIR PLACE IN THE ANIMAL KINGDOM** Introduction, basic anatomy, history and present diversity, factors contributing to success



Polychrome ceramic vase, Hokeb Ho, Belize.

Feb. 28. **THE PRIVATE LIVES:** How they grow, molting and its control; life histories and social behavior.

Mar. 7. **BED AND BOARD:** Insect habitats, food and feeding, shelter problems, reproductive potential and population fluctuations.

Mar. 14. **HAZARDS OF INSECT LIFE:** Survival responses to competition, disease, predators and climate.

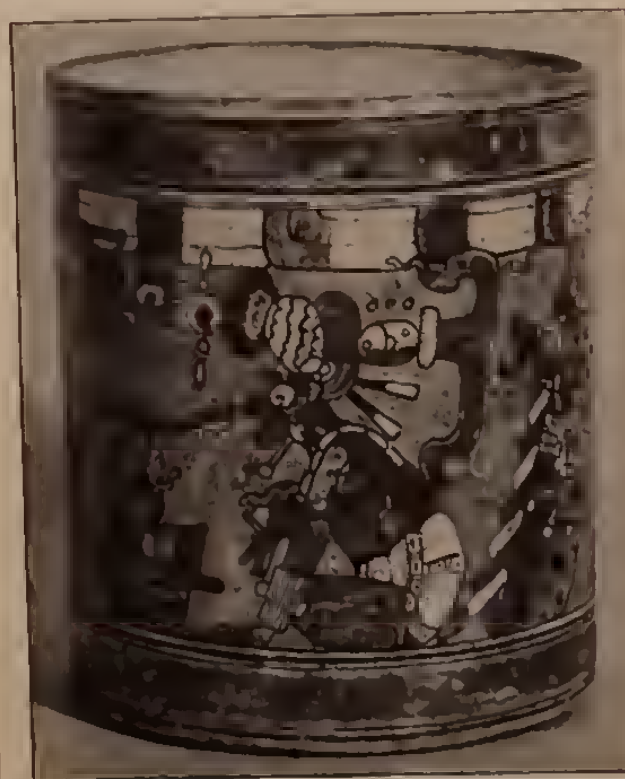
Mar. 21. **THE SENSES OF INSECTS:** How they are studied; communication among insects.

Mar. 28. **INSECTS AND PEOPLE:** Harmful and beneficial aspects, how people affect the insect world; some thoughts on peaceful coexistence.

ANIMAL DRAWING

Eight Tuesday evenings starting February 19
7:00-9:00 p.m.
Fee: \$80 (materials not included)
Limited to 25 persons

Join us as we sketch gazelles on the African plains, or draw timber wolves in the snowbound north. Using exhibition halls after the Museum has closed to the public, students draw from realistic habitat groups as well as mounted specimens. **Stephen C. Quinn**, Senior Principal Preparator-Artist in the Museum's Exhibition Department, will discuss drawing technique, animal anatomy, the role of the artist at the Museum, field sketches, and how exhibits are made. Different media and techniques are explored. Individual guidance is given to each participant from beginner to experienced artist. The following exhibition halls will serve as studios: The Akeley Hall of African Mammals; Osborn Hall of Late Mammals; Hall of North American Mammals; Hall of North American Birds; Hall of Late Dinosaurs; Hall of Ocean Life.



Polychrome pottery, Mexico.

ORIGAMI: AN INTRODUCTION TO PAPERFOLDING

Six Tuesday evenings starting February 19
7:00-8:30 p.m.
Fee: \$60 (materials not included)
Limited to 20 persons

Origami is the Japanese word for the centuries-old art of folding single sheets of paper to create anything imaginable without using scissors or paste. The class will learn many traditional origami bases and become familiar with the maneuvers and terminology of the art. Among the models to be taught are a butterfly, strawberry, dove, panda and frog. The instructor, **Michael Shall**, provides step by step diagrams which he designed with his teacher, Alice Gray, to reinforce what is folded during each session.

TRAVEL PHOTOGRAPHY WORKSHOP

Six Thursday evenings starting February 21
7:00-9:00 p.m.
Fee: \$60
Limited to 22 persons

Designed for the traveler who wants to photographically record peoples and places, near and far. Includes: what is travel photography; the special problems related to photographing while traveling; basics of camera technology and lighting; proper exposure; selection and use of equipment; and most importantly, how to see photographically. **Willia Zakin**, professional photographer trained in anthropology, offers lectures, slides and class demonstrations of lighting and camera mechanics. Weekly assignments will be followed by a class critique.

FIELD TRIPS

For Weekend Field Trip Itinerary and application, call (212) 873-7507

WEEKEND FOR BIRD ENTHUSIASTS

May 4 and 5
Limited to 36 adults

Two-day bus trip covering a wooded area near New York City, and daytime and evening visits to a lake and bog area in the Pine Barrens of New Jersey. The group is accommodated overnight near Toms River. The tour continues to Brigantine National Wildlife Refuge, where many marsh birds as well as woodland species can be seen. **Kenneth A. Chambers**, Lecturer in Zoology at the Museum, leads this field study tour.

WEEKEND IN GEOLOGY

May 18 and 19
Limited to 36 adults

Two-day bus trip to survey geology between the Appalachian Plateau in northeastern Pennsylvania and the Coastal Plain of northern New Jersey. Along the Coastal Plain there are visits to Sandy Hook and the Highlands of the Navesink. Collecting stops are made enroute. The group is accommodated overnight near Parsippany. **Dr. George Harlow**, Associate Curator, Department of Mineral Sciences at the Museum, leads this field study tour.

WEEKEND WHALE WATCH OFF CAPE COD

May 10-12
or
May 17-19
Limited to 45 adults

A weekend of whale-watching off the rich feeding grounds of Stellwagon Bank, near Cape Cod, where several species of whales are commonly seen at close range. Our search for these magnificent creatures involves three optional four-hour whale cruises from Provincetown. In addition to the marine biologists who will be aboard the boat, two Museum staff members will accompany the group: **Sydney Buffum**, naturalist, and **Stephen C. Quinn**, field ornithologist, who will assist in identifying the many species of coastal birds. Other highlights of the weekend include optional nature walks along the dunes exploring historic Provincetown, an evening Marine Mammal Slide Talk illustrating interesting sightings off the Bank, and a visit to the recon-

structed whaling port of Mystic, Connecticut. Cost includes transportation, accommodations and meals.

BIRDS OF THE WETLANDS: DAY TRIP TO JAMAICA BAY

Saturday, April 27
8:00 a.m. to 5:00 p.m.
Fee: \$35
Limited to 36 adults

An all-day excursion by bus to the marshlands and estuaries of Jamaica Bay Wildlife Refuge to observe the spring migration of marsh and waterbirds. Herons, egrets, waterfowl and shorebirds are only a few of the diverse varieties of birds attracted to these rich wetlands. **Stephen C. Quinn**, naturalist and Senior Preparator-Artist in the Museum's Exhibition Department, leads the trip.

SATURDAY FIELD WALKS IN BOTANY

Six day walks starting April 27
10:00 a.m.
Fee: \$70
Limited to 30 adults

During the spring blooming period, walks are taken to areas of botanical significance in New York City and vicinity to learn about wild plants, particularly the flowering forms. Identification and ecology of the plants are discussed informally. **Helmut Schiller**, Lecturer in Botany at the Museum, leads these Saturday walks.



Two-port effigy censer, Uaxtan, Guatemala.

I would like to register for the following lecture series:

Course(s): _____

Day(s): _____ Time: _____

Price: _____ (Note that Participating, Donor and Elected Members get a 10% discount on most courses.)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

I enclose a check payable to the American Museum of Natural History, and a self-addressed, stamped envelope. Mail to *Afternoon and Evening Lecture Series*, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Return of the Osprey

Thursday, February 14

7:30 p.m.

Main Auditorium

Free and open only to Members



An Osprey watches over her five-week old young

In the 1960's, the insecticide DDT caused Osprey eggs to become thin-shelled. The Osprey population crashed. Today, a successful conservation effort has saved these birds from extinction.

Next month, Members are invited to celebrate the comeback of these magnificent birds of prey, as you see a beautiful film and talk with one of the filmmakers.

Return of the Osprey is an intimate nest-side look at Ospreys in the Long Island

Sound region. Filmmakers Michael Male and Judy Fieth spent five years filming Ospreys as they built nests, courted, raised young, and splashed into the water to catch live fish.

This film is also a look at the people who helped save the Osprey, and how they did it. Dr. Roger Tory Peterson, author of the *Peterson Field Guide to the Birds* appears in the film along with other scientists and conservationists who were instrumental in

banning DDT to save the birds.

The filmmakers interviewed people all along the Northeast coast who now have Ospreys nesting and catching fish near their homes. To these people, the Osprey is a welcome neighbor, a sign of the coming of spring, and of a healthier environment.

Following the film, one of the filmmakers will answer your questions. To register for the program, please use the adjacent February coupon.

Darwin's Ark

Tuesday, February 5, 7:30 p.m.

Hall of Ocean Life

Free for Members, \$4.00 for non-members

*So after our millions of years
of inventing a thumb and a cortex,
and after the long pain
of writing our clumsy epic,
we know we are mortal as mammoths,
we know the last lines of our poem.**

The discovery of the ideas of Charles Darwin was a revelation for poet Philip Appleman, bringing with it a "profound satisfaction in knowing that one is truly and altogether a part of nature." He has been studying and writing about Darwin ever since he first read *The Origin of Species* in 1948.

In his new book of poetry, called *Darwin's Ark*, Mr. Appleman applies Darwinian

ideas to the twentieth century and the profound crises facing mankind today. Overpopulation, limited resources, pollution, endangering of other species, and the threat of extinction itself are the underlying concerns of his poems.

Members are invited to join Philip Appleman in the Hall of Ocean Life, as he reads poems from *Darwin's Ark*. These poems illustrate, with a sense of mystery, the

connectedness of man and nature, of the present with the past, of joy and sorrow, and of life and death.

Mr. Appleman is Distinguished Professor of English at Indiana University and the author of three previous volumes of poetry, two novels, and numerous nonfiction books. His award-winning poems have appeared in many American and foreign periodicals.

Please use the adjacent coupon to order tickets

*reprinted by author's permission from *Darwin's Ark*, Indiana University Press, © 1984 by Philip Appleman.

February Membership Programs Coupon

The Membership Office is looking for a quicker, more efficient way to fulfill your ticket requests. In the next two issues, we will be combining several programs on one coupon. If this method works well, we'll continue along this path, ultimately saving space for more articles and photographs. Your comments are welcome.

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Total Amount enclosed: _____

\$

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: *February Membership Programs*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024

Poems of Darwin. Tuesday, February 5.
Free for Members, \$4.00 for non-members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. All other tickets are \$4.00.

Number of tickets: _____

Monkey of the Clouds. Sunday, February 24.
Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. All other tickets are \$4.00. Please indicate a first and second choice of times:

11:00 a.m.

1:30 p.m.

3:30 p.m.

Number of tickets: _____

Return of the Osprey. Thursday, February 14
Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. All other tickets are \$4.00.

Number of tickets: _____

Monkey of the Clouds

Sunday, February 24
11:00 a.m., 1:30 and 3:30 p.m.
Kaufmann Theater
Free and open only to Members

The Peruvian yellow-tailed woolly monkey (*Lagothrix flavicauda*) is the largest mammal endemic to Peru. It is found only in a small area on the eastern slope of the Andes. This monkey was long thought to be extinct, and the discovery of a live specimen in 1974 marked the first time in nearly 50 years for it to be seen by anyone outside the remote local population of its range.

This fascinating monkey of the Andean Cloud forest,

whose survival continues to be threatened by encroaching human presence, is the subject of our Family Members' Program *Monkey of the Clouds*.

The program will begin with a slide presentation, introducing you to primates from around the world. You will learn of these animals' dependence on tropical forest habitat, current threats to this habitat, and the importance of ongoing conservation efforts.

In the beautiful film *Monkey*

of the Clouds, you will become acquainted with the appearance, habitat, behavior, and threatened existence of the yellow-haired woolly.

Following the film, Members will have an opportunity to learn about the work of field primatologists in a question and answer session with a staff member from the World Wildlife Fund.

Please use the February Programs coupon on page 9 to register for this program.



A juvenile yellow-tailed woolly monkey clings to the shoulder of a human friend.

Black History Month

Next month the Museum will celebrate Black History Month with drama, dance and music presentations, lecture demonstrations, and discussions. A full calendar of Black History Month events will be offered in the February issue of *Rotunda*. Meanwhile, here's what's happening during the first two weeks of February. The following programs are free with Museum admission:

Creativity
Saturday and Sunday
February 2 and 3
1:00 to 4:30 p.m.

Leonhardt People Center
Comparative Styles: African and Black American Weavers. Mari Morris.

The Spirituality of Black Literature. Mildred Keel-Williams.

Black Inventors. A dramatic reenactment of black scientists' and inventors' contributions in many fields. Irene Datcher.

Africa
Saturday and Sunday
February 9 and 10
1:00 to 4:30 p.m.

Leonhardt People Center

Egypt Through The Eyes of L.D. Frazier — a black American's impression of ancient

and modern civilization on the Nile.

African Inspirations of Rhythm. Ajaibo Walrond and his company present songs, dances and rhythms from Africa and the Caribbean.

African Adornment: Body Jewelry. Using slides and artifacts, Carmen Lowe describes the ways African men and women accent their beauty.

A Touch of Folklore and More
Sunday, February 10
2:00 and 4:00 p.m.
Kaufmann Theater

The dance group *A Touch of Folklore and More* performs African festival dances. Free tickets for this program will be distributed at the first floor information desk on a first-come-first-served basis starting at 12:15 p.m. on the day of the performance. Seating is limited, so Members are advised to arrive early to avoid disappointment.

These African-American programs presented by the Department of Education are made possible in part by the generosity of the family of Frederick H. Leonhardt and a gift from the Evelyn Sharp Foundation. For further information, please call (212) 873-1300, ext. 514.

Happenings at the Hayden

Sky Shows

The Violent Universe. From January 4 through June 23. On a clear night, the sky appears peaceful and unchanging. Yet, throughout the universe there are forces at work that stagger the imagination. In this exciting program, an unprecedented array of special effects will take you on a tour of our dynamic and fascinating universe from black holes to exploding galaxies to the birth of the cosmos itself.

Sky show admission for Participating, Donor, and Elected Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-members' prices and for sky show times, please call (212) 873-8828.

Please note: The Planetarium will be closed for show installation on January 2 and 3.

Wonderful Sky

Through dialogue, song and audience participation, children explore rainbows, sunsets, and distant, sparkling stars in this special sky show for children from three to six years of age. This popular show features images of chil-

dren's favorite Sesame Street Muppets®, including Big Bird, Oscar, and Cookie Monster. For *Wonderful Sky* information, please call (212) 873-5714.

1984. Children's Television Workshop, Muppets, Inc.

Laser Zeppelin and Laser Floyd

Laser visuals and the music of Led Zeppelin combine to create a unique and dazzling experience of sight and sound, Friday and Saturday at 7:30 and 10:30 p.m.

The music of Pink Floyd is featured on Friday and Saturday evenings at 9:00 p.m. in *Laser Floyd*.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700. The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

When in doubt, call before coming. All prices and show times are subject to change without notice.

Museum Notes



The Asantehene (Asante King) and his entourage pose in front of the Museum during their October visit in conjunction with Asante: Kingdom of Gold. The Asantehene is back home in Ghana, but the exhibition is here until March 17.

Special Exhibitions

Asante: Kingdom of Gold. Through March 17, 1985. This exhibit recreates the precolonial splendor of the Asante people and their west African kingdom. The thrust of the show is environmental, with special emphasis on the Asante world view interpreted through more than 800 artifacts from the British Museum, home of the greatest collection of Asante material outside Ghana. Gallery 3.

Ban Chiang: Discovery of a Lost Bronze Age. Through January 28, 1985. This exhibit presents the first comprehensive view of a recently excavated, previously unknown highly innovative society at Ban Chiang in northeast Thailand, and other related sites. Outstanding examples of red-on-buff pottery, bronze tools, ornaments, weapons, rare glass beads, and jewelry will be displayed. Gallery 1.

1984 Origami Holiday Tree. Through January 6, 1985. A magnificent display of

the delicate art of folding paper, featuring dinosaurs, elephants, jellyfish and much, much more. A delight for both children and adults. Roosevelt Rotunda, second floor.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archaeologists, anthropologists, historians, and naturalists. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of

New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films, made ten times larger than

ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

There are several independently operated garages within walking distance of the Museum.

the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m. In addition, the Lair will be open on December 26, noon-7:00 p.m. and December 27 and 28, noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following programs and events:

- ☐ February is Black History Month at the Leonhardt People Center.
- ☐ Coming in March, *Animals in Motion*. A selection of Chubb's skeletons will be exhibited along with examples of the work of other scientists active in the study of animal movement.
- ☐ Beginning April 18: *John James Audubon: Science into Art*. This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth.
- ☐ April 26 through July 28: *Maya: Treasures of a Lost Civilization*. This temporary exhibition from the Albuquerque Museum will include stone reliefs, pottery, jade and other works of art.

The Gift Of Music

A Tribute to Dr. Martin Luther King
Monday, January 21
7:30 p.m.
Main Auditorium
Free

This year, the Museum once again celebrates Dr. Martin Luther King Jr.'s birthday, which has been proclaimed a national holiday beginning next year.

Poetry. Joanna Featherstone will perform a poetic tribute to Dr. King, using as inspirational sources the poems of Nikki Giovanni, Langston Hughes, Margaret Walker, and other distinguished black poets.

Music. Dewight Cassaway, award-winning vibraphonist and his all-star group *Fuma*

Pefada (Heavy Smoking) will perform popular jazz, and a gospel choir will lift their voices in honor of Dr. King.

Dance. Ajaibo Walrond and his African Inspirations of Rhythms will perform dances from Africa and the Caribbean.

The Gift of Music is a joint presentation of the Caribbean and African American programs of the Department of Education. For additional information about this program please call (212) 873-1300, ext. 514.

Sun

Mon

January 1985

American Museum of Natural History

Tue

1 New Year's Day
Last day to see *The Star of Christmas* at the Hayden Planetarium.
Museum open.

Wed

2 7:45 p.m. *Amateur Astronomers Association*
Kaufmann Theater. Free

Thu

3 7:00 p.m. *Systematics Discussion Group*. Room 419 Free

Fri

4 First day of *The Violent Universe* at the Hayden Planetarium. Page 10

Sat

5 11:00 a.m. *N.Y. Map Society*
Room 129. Free.
1:00-4:30 p.m. *Pacific Peoples Month*. Aotearoa. Land of the long white cloud. Maori dances of New Zealand. Languages of Polynesia. Games and Amusements of Polynesia. Leonhardt People Center. Free.

8

7 Members of the Archeology Tour to Mexico arrive in Mexico City. For information on future Discovery Tours call (212) 873-1440

6 Last Day to view the Origami Holiday Tree. Roosevelt Rotunda, second floor.
1:00-4:30 p.m. *Pacific Peoples Month*. Leonhardt People Center. Free.

Full Moon.

10

9 7:30 p.m. *N.Y. Mineral Society*. Leonhardt People Center. Free.

11

Moon is at perigee

12 1:00-4:30 p.m. *Pacific Peoples Month*. Dances of Samoa. Polynesian Foods. Voyaging with the Ancients. Navigation in the Pacific. Leonhardt People Center. Free.

14

13 1:00-4:30 p.m. *Pacific Peoples Month*. Dances of Hawaii. Traditions in Hawaiian Daily Life. Hawaiian Language Today. Leonhardt People Center. Free.
2:00 p.m. *N.Y. Shell Club*. Room 419. Free.

Last Quarter (half moon)

15 7:30 p.m. *The Last Sailors. Members' Evening Program*. Auditorium. Free and open only to Members. Page 3.
8:00 p.m. *N.Y. Entomological Society*. Room 129. Free.

Dr. Martin Luther King's Birthday
Restaurant open until 7:30 p.m.

17

16 7:00 p.m. *Sixth Annual Third World Film Festival*. Black Film and the Directive Image. Auditorium. Free. Page 2.

18 8:00 p.m. *N.Y. Microscopical Society*. Room 419. Free.

19 1:00-4:30 p.m. *Pacific Peoples Month*. Dances of Bali. Masked Dances of Java. Gamelan Music of Indonesia. Leonhardt People Center. Free.
11:00 a.m. and 1:00 p.m. *Circles and Starbursts. Members' Children's Program*. Page 3.

22

21 7:30 p.m. *The Gift of Music*. Dedicated to Dr. Martin Luther King. Auditorium. Free. Page 11.

20 11:00 a.m., 1:00 and 3:00 p.m. *Circles and Starbursts. Members' Children's Program*. Page 3.
1:00-4:30 p.m. *Pacific Peoples Month*. Leonhardt People Center. Free. See January 19 listing.
2:00 p.m. *N.Y. Paleontological Society*. Room 426. Free.
2:00 p.m. *N.Y. Turtle & Tortoise Society*. Room 129. Free.
New Moon

24

23 7:00 p.m. *Sixth Annual Third World Film Festival*. Black Film and the Directive Image. Auditorium. Free. Page 2
7:30 p.m. *Lapidary & Gem Society*. Leonhardt People Center. Free.

An Osprey may have a wingspan of up to six feet. See page 9 for information about a February program dedicated to this beautiful bird.

25

26 1:00-4:30 p.m. *Pacific Peoples Month*. Traditional Music of the Southern Philippines. Dances of the Philippines. Leonhardt People Center. Free.
2:00-4:30 p.m. *Pacific Peoples Film Festival*. Kaufmann Theater. Free.

28 Last day to view the exhibit *Ban Chiang: Discovery of a Lost Bronze Age*. Gallery I.

First Quarter (half Moon)

27 1:00-4:30 p.m. *Pacific Peoples Month*. Traditional Music of the Philippines. Dances of the Philippines. Leonhardt People Center. Free.
2:00-4:30 p.m. *Pacific Peoples Film Festival*. Kaufmann Theater. Free.
Moon is at apogee

30 7:00 p.m. *Sixth Annual Third World Film Festival*. Black Film and the Directive Image. Auditorium. Free. Page 2.

29 6:00 and 7:30 p.m. *The Violent Universe. Special Members' Viewing*. Planetarium. Tickets required. Page 1.

Restaurant open until 7:30 p.m.



Michael Mabe

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol 10, No 2 February 1985



This mountain goat is one of the many fascinating inhabitants of the rugged mountains of Alaska, to be featured in Alaska: Giant of the North.

Animals, Plants, People, and Places

The Education Department's very popular *Spring Lecture Series* courses fill up quickly, so now is the time to register.

Members who plan to see the *Maya. Treasures of an Ancient Civilization* exhibition when it opens in April may be particularly interested in attending the three-part series *Maya Civilization* (beginning February 19)

Or journey to a very different part of the world — the Middle East. In *Islamic Arts and Sciences* (beginning February 19) you will learn about Islamic art, architecture, applied sciences, natural history, medicine, and much more. In *Variety of Jewry* (beginning February 25), Dr. Shlomo

Deshen, President of the Israel Anthropological Association, discusses the differences and similarities among Chinese, Indian, Kurdish, Moroccan, Yemenite, and Tunisian Jewish communities.

If you'd prefer a potpourri of cultures from around the world, you might try *Anthropology on Film* (beginning February 21). From the Sherpas of Nepal and a healing community in West Africa to Indians in Venezuela and a religious sect in the United States, the films included in this course explore cultural change, coping with the unknown, and male and female roles.

Back in the United States, a land of

wild beauty and vast differences await you in *Alaska: Giant of the North* (beginning February 25). This lecture series focuses on spectacular wilderness areas and their plant and animal inhabitants.

Other courses beginning in February and early March include *Two Lectures By Donald C. Johanson*, *Wild Flowers of the Northeast*, and *Landscapes for Travelers*. Please consult your January *Rotunda*, or call the Department of Education at (212) 873-7507 for a free brochure listing these and many other fascinating classes. Participating, Donor and Contributing Members receive a 10% discount on all courses except those with limited enrollment.

Tantric Rituals

The Gyuto Tantric Monks, still in exile from their native Tibet, will share Buddhist rituals with the uninitiated in their premiere United States performance.

Page 5

Back to the Dinosaurs

Take a multi media journey to the world of the dinosaurs in this special Members' Family Program with Oznie Tollefson.

Page 3

Black History Month

Dance performances, a tribute to Sarah Vaughan, and tales of "The Black West" are just a few ways of celebrating Afro-American culture and heritage at the Museum this month.

Page 2

42nd Street

Few people know this, but fossils are one of 42nd Street's most exciting offerings. Join Sidney Horenstein for a new look at lobbies, walls, and the sidewalk beneath your feet.

Page 3

Birds of Prey

Through breathtakingly close-up photography, Members will see the daily lives of the Ospreys of Long Island Sound and meet some of the conservationists who saved them, in the film *Return of the Osprey*.

Page 2



The Black West: Black Cowboys and Indians

Black History Month

Each weekend this month, and on several weekday evenings, the Museum will celebrate Black History Month. Featured will be the music, dance, and history of Africa, and the unique scientific, artistic, and spiritual contributions of Afro-Americans to our country and the world.

In addition to the Leonhardt People Center programs listed in the calendar on page 8, the following programs are free with Museum admission and are open to all Museum visitors. They are presented by the Museum's Department of Education

A Touch of Folklore Sunday, February 10 2:00 and 4:00 p.m. Kaufmann Theater

The "A Touch of Folklore and More" dance ensemble performs African festival dances. Free tickets for both performances will be distributed at the first floor information desk on a first-come, first-served basis starting at 12:15 p.m. on the day of the per-

formance. Seating is limited.

The Black West Wednesday, February 13 7:00 p.m. Main Auditorium

When the true story of the Western frontier is written, it will reveal that a fourth of the cowpunchers who drove cattle up the Chisolin Trail soon after the Civil War were Afro-Americans, and that a fifth of the U.S. Cavalry was made up of the intrepid Black regiments the Indians respectfully called "Buffalo Soldiers." Many other fascinating and little-known details of American history will be presented in a slide show by historian William Loren Katz, author of *The Black West* and *Black People Who Made the Old West*, who will recount part of the story of Afro-Americans in the American West.

In the second half of the show, actor George Tooker will perform the actual words of black frontier figures. Visitors will hear about a West that was never depicted in Holly-

wood "horse operas," and about people whose horses never galloped through our history books.

This program is free with Museum admission. There are no tickets or reservations.

A Tribute to Sarah Vaughan Saturday, February 23 2:00 and 4:00 p.m. Kaufmann Theater

The Inner Circle All-Stars pay tribute to one of America's foremost female jazz vocalists, whose renditions of "Tenderly," "Don't Blame Me," and other songs continue to thrill audiences throughout the world.

Jann Parker will perform numerous Sarah Vaughan favorites. Ken Hall will moderate.

Free tickets for both performances will be distributed at the first floor information desk on a first-come, first-served basis starting at 12:15 p.m. on the day of the performance. Seating is limited.

Return of the Osprey

Thursday, February 14

7:30 p.m.

Main Auditorium

Free and open only to Members

An intimate look at the everyday life of magnificent birds of prey awaits Members in the film *Return of the Osprey*. Through breathtaking close-up photography, Members will watch Ospreys of the Long Island Sound region performing courtship flights, building nests, raising young, and catching live fish. The near-extinction of the Ospreys and the successful conservation efforts to save them are also important subjects of this beautiful film.

During the 1960's the insecticide DDT led to an epidemic of thin-shelled Osprey eggs, imperilling the existence of these birds. Dr. Roger Tory Peterson, author of the

Peterson Field Guide to the Birds, and other scientists and conservationists appear in the film to tell of their successful efforts to ban DDT, saving Ospreys and other wildlife in the area.

Return of the Osprey was filmed over a five-year period by Michael Male and Judy Heth. Following the film, one of the filmmakers will be on hand to answer your questions, both about the amazing birds that are the film's subject, and about the experience and rewards of filming them.

To register for *Return of the Osprey*, please use the Members' Programs Coupon on page 5.

ROTUNDA

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Letter from the Editor

Natural Curiosity or Do Fish Sleep?

I am privileged to share my apartment with two turtles, (a three-striped mud and a stink-pot), three fast-growing bull-head catfish, two tiny Giant Danios who follow each other about the tank, and a large, lazy plecostomus who sucks all day on rock, wood, and glass.

It took several months of sharing my residence with the fish to remark that they never seemed to sleep. How strange, I thought. Doesn't everyone need a good night's (or day's, if you're nocturnal) sleep? How do these critters swim around for twenty-four hours a day without ever stretching out on a rock to take a nap, the way the turtles and I do?

Fortunately, I realized, I work in a good place to obtain the answers to these and other equally interesting questions. And since I am editor of *Rotunda*, it is literally my job to run around all day asking questions of Museum staff members. Thus, the birth of this column.

I'm sure there are many *Rotunda* readers who, in the midst of a company meeting in conference room 100 have found themselves sleepily listening to the cooing of pigeons on the ledge outside and have wondered about issues like "You see and hear full-grown pigeons all over New York. But where are all the baby pigeons?"

Or maybe a few of you, awakening at 3:00 a.m. in the middle of a nightmare involving bubbling lava and erupting volcanoes, have sat up in bed to regain your composure and wondered "What did New York look like in two million B.C.?"

If there's anything about the natural world you've been curious about lately, whether it's on the subject of mammals, insects, reptiles, amphibians, fish, birds, humans, the planet earth, or outer space,

please write in and ask. I will consult Museum scientists, doing my best to find answers for as many questions as space permits.

One question to a customer, please. I cannot answer any letters personally, nor can I return your questions to you. Questions should be addressed to *Natural Curiosity*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. I'm looking forward to hearing from you.

Meanwhile, I want to answer at least one question posed in this first column. **Do fish sleep?** Dr. C. Lavett Smith (Ichthyology) says that some of them definitely do. The blue-headed wrasse actually "snuggles up" in the mud to sleep. And parrot fishes "put on pajamas at night" before they sleep — secreting a mucus envelope around themselves for protection.

As for most other fish, the answer is uncertain. If they do sleep, they don't sleep in the same way we do. Fish can't "close their eyes" since they don't have eyelids. And generally they must keep swimming to keep from floating atop the water, unless they find something to anchor them (like mud). However, there's no law that says you can't move around while you sleep — witness the great number of people who sleepwalk. So it may be that fish spend at least some of their time "sleepswimming."

"Whether fish sleep or don't sleep," says Dr. Peter Moller (Ichthyology), "depends largely on how you define sleep." Generally sleep is defined in mammalian terms which take into account factors like brain activity, eye movements, and reduced locomotion. While fish don't sleep like mammals do, they go through periods of greater and lesser activity.

The Great Dinosaurs

Saturday, March 23 and Sunday, March 24

11:00 a.m. and 2:30 p.m.

Kaufmann Theater

\$2.50 and open only to Members

Have you ever seen a clothesline stretched across a room to represent 200-million-years of time on earth? Or attended a geology class in which strips of foam rubber represented the earth's layers and fossil dating? These are just two of the ways in which Ozzie Tollefson teaches children about dinosaurs.

In 1978, Mr. Tollefson was invited to Utah to observe and photograph Dr. James Jensen and his Brigham Young University students as they dug for dinosaur bones. Out of this trip he created an educational slide show which takes children on a fascinating

journey from the fossil beds where dinosaur bones are found to the illustrated pages of dinosaur books. This slide show, with further embellishments, became *The Great Dinosaurs*, a treat for dinosaur fans of all ages.

In this special Members' family program, children will view slides first and then go on an imaginary trip back to the age of dinosaurs. Music, giant projections, shadow effects, huge foam rubber puppets, and imagination are the tools used to create an amazing dinosaur adventure.

During the past eight years Mr. Tollefson has given more

than 2,500 performances in nearly 1,000 schools for close to a million students. In 1976, he founded Ozzie Alive Inc., a theatrical group which performs programs related to various of Mr. Tollefson's favorite animals.

There will also be special activities in conjunction with the program. Members will have the opportunity to play Dinosaur Bingo, hunt dinosaurs in the Dinosaur Hall, and make a special dinoscape.

"*The Great Dinosaurs*" is open only to Members and their guests. **To register, please use the Members' Coupon on page 5.**

Fossils of 42nd Street

Sunday, March 3

11:00 a.m., 1:00 p.m. and 3:00 p.m.

\$5 and open only to Members

People spend time on 42nd street for all kinds of reasons. In our March Members' tour with Sidney Horenstein, you can become one of a select group of New Yorkers to visit 42nd Street with the intention of scouting fossils in lobbies and doorways, and learning a bit about Earth's history.

In this year's *Fossils of 42nd Street*, Members will find remnants of extinct sea creatures embedded in lobbies and walls. 450-million year-old ancestors of the chambered nautilus, and snails and clams from Texas that lived

during the time of the dinosaurs are just a few of the fossils which most of us would never notice on our own, but which become obvious once they are pointed out.

Mr. Horenstein will discuss several of the beautiful building stones used in 42nd Street facades, many of which hail from far-flung places and provide important records of the earth's development through many eons.

Fossils of 42nd Street will go on rain or shine. **Please use the Members Coupon on page 5 to register.**



Ozzie Tollefson and a dinosaur pal.



Children examine a model of the sun in Hall of the Sun, one of the Planetarium's most popular exhibits.

Happenings at the Hayden

Sky Shows

The Violent Universe. Narrated by Vincent Price. Through June 24. On a clear night, the sky appears peaceful and unchanging. Yet throughout the universe there are forces at work that stagger the imagination. In this exciting program, an unprecedented array of special effects will take you on a tour of our dynamic and fascinating universe from black holes to exploding galaxies.

Sky Show admission for Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and for sky show times, please call (212) 873-8828.

Wonderful Sky

Through dialogue, song and audience participation, children explore rainbows, sunsets, and distant, sparkling stars in this special sky show for children from three to six years of age. This popular show features images of children's favorite Sesame Street Muppets, including Big Bird, Oscar, and Cookie Monster. For *Wonderful Sky* information, please call (212) 873-5714 or use the coupon below.

© 1985, Children's Television Workshop, Muppets, Inc

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experi-

ence of sight and sound on Friday and Saturday evenings in the following laser shows:

Through February 16: Led Zeppelin music at 7:30 and 10:30 p.m. Pink Floyd music at 9:00 p.m.

February 22 through April 27: World Premiere of *Heavy Laser*, featuring music of The Police, Van Halen, The Who, and Rush at 7:30, 9:00 and 10:30 p.m.

Laser show admission for Participating, Donor and Contributing Members is

\$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

Members are advised to call before coming. All prices and show times are subject to change without notice.

Wonderful Sky. Saturday mornings at 10:00 a.m. Children: \$1.50 Adult Members: \$2.75. Adult non-members: \$3.75. **Limit of two adult tickets at Members' price.** Please indicate a first and second choice:

March 2	May 4
April 6	June 1
Number of Adult Tickets (Member)	X \$2.75 \$
Number of Adult Tickets (Non-member)	X \$3.75 \$
Number of Children's Tickets	X \$1.50 \$
Total Payment Enclosed	\$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Make check payable to the American Museum-Hayden Planetarium and mail with a self-addressed, stamped envelope to: *Wonderful Sky*, Hayden Planetarium, Central Park West at 81st Street, New York, NY, 10024. All ticket orders must be received two weeks prior to show date

Monkey of the Clouds

Sunday, February 24
11:00 a.m., 1:30 and 3:30 p.m.
Kaufmann Theater
Free and open only to Members

The Peruvian yellow-tailed woolly monkey is the largest mammal endemic to its country and lives solely in a restricted region of the Andes. This beautiful creature, with its mahogany-colored fur and sharply contrasting white facial patches is one of the rarest, least-known, and most endangered of the world's primates.

This monkey, its unique environment high up in the clouds of the Andes, and the struggle to conserve both the animal and its habitat form the focus of our February family program.

In addition to learning about the yellow-tailed woolly in the remarkable film *Monkey of the Clouds*, Members will also view a slide presentation about primates throughout the world, with an emphasis on those of the tropical rainforest. A scientist from the World Wildlife Fund will be on hand to answer your questions and discuss his experiences as a primatologist in the field.

A limited number of tickets are still available for this program. **To register, use the Members' Coupon on page 5.**



Tantric Rituals

Wednesday, March 20, 7:30 p.m.

Main Auditorium

and

Thursday March 21, 7:30 p.m.

Hall of Ocean Life

\$7.50 for Members and students with i.d.

\$12.50 for non-members



The Gyuto Tantric Monks perform a ritual that originated in the fifteenth century.

Once the harmonic chords and metaphysical texts of the Tantric Buddhist rituals were known only to the Tibetan Monks themselves. But since the Chinese invasion of Tibet in 1950, thousands of Tibetans have been killed and others are in exile far from home. The Gyuto Tantric Monks, themselves exiles in India, feel that due to the Tibetan diaspora, their community has expanded to the non-Buddhist world, and they can now share certain of their rituals with the uninitiated. Their performance at the Museum next month marks their premiere engagement in the United States.

The "reasons" for Tantric rituals are often difficult for the Westerner to comprehend. Rituals such as the creation of mandalas and the chanting of sacred texts are inroads to an essential state, where qualities and forces within us that are ordinarily in conflict (e.g. peaceful/wrathful, receptive/active), become one.

The Tantric texts are devoted to Tibetan Buddhist deities, and to the different qualities of energy they embody. Perhaps the most

important deity of the Gyuto Monks is Guhyasamaja Buddha, who represents the Buddha enlightenment as compassion and wisdom in union, Father and Mother of life.

The music which expresses the Tantric texts is among the most interesting in the world. The voice generally produces one resonant low note around which others are woven. The Gyuto monks study from as early as age nine to master these sounds. Many of the notes they sing are well beyond the bass limit of Western singers, and several Monks are capable of singing three-note chords. Some of the chants are accompanied by sacred instruments such as the rag-dung (Tibetan trumpet), the bukad sil-nyen (cymbals), and various drums.

Prior to the shattering of the Tibetan religious community, the Gyuto Monks dwelled in Upper Lhasa. They now live and work in the Northeast of India near Bomdila, close to the Tibetan border. Then, as now, they are considered one of the most exalted and esoteric Buddhist orders, due to the depth of perception they achieve through meditation

and devotion. They are also one of the oldest Tibetan orders, first established in the fifteenth century, carrying on primordial traditions.

Tantric Rituals will be narrated by Dr. Robert Thurman, one of the foremost authorities on Buddhism in the United States, and a friend of His Holiness the Dalai Lama. Dr. Thurman will speak of the deities and spiritual helpers evoked in the rituals, and of their sacred influences in human affairs.

Following the rituals, Dr. Thurman will conduct a question and answer session, providing an interface between two very different cultures which have a great deal to share with one another.

This program has been made possible through the efforts of American Landmark Festivals, (cooperating with the National Park Service), and the American Museum of Natural History. The Gyuto Monks will tour the United States with the permission of His Holiness the Dalai Lama, their master teacher.

To register for Tantric Rituals, please use the adjacent Members' Programs Coupon.

Members' Programs Coupon

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to Members' Programs, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024

Return of the Osprey Thursday, February 14 Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. All other tickets are \$4.00.

Number of free tickets _____
Number of tickets at \$4.00 each _____
Amount enclosed: \$ _____

Monkey of the Clouds Sunday, February 24 Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. All other tickets are \$4.00. Please indicate a first and second choice of times.

11:00 a.m. 1:30 p.m. 3:30 p.m.

Number of free tickets _____
Number of tickets at \$4.00 each _____
Amount enclosed: \$ _____

The Great Dinosaurs Saturday, March 23 and Sunday, March 24, \$2.50 and open only to Participating, Donor and Contributing Members. **Limit of four tickets.** Please indicate a first and second choice of dates (if possible).

Saturday, March 23	11:00 a.m.	2:30 p.m.
Sunday, March 24	11:00 a.m.	2:30 p.m.

Number of tickets at \$2.50 each _____
Amount enclosed: \$ _____

Fossils of Forty-Second Street Sunday, March 3 \$5 and open only to Members. Please indicate a first and second choice of times:

11:00 a.m. 1:00 p.m. 3:00 p.m.

Number of tickets at \$5.00 each _____
Amount enclosed: \$ _____

Tantric Rituals Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$7.50. Associates and students with i.d. are entitled to one. All other tickets may be purchased at \$12.50 each. Please indicate a date preference.

Wednesday, March 20, 7:30 p.m.

Thursday, March 21, 7:30 p.m.

Number of tickets at \$7.50 _____
Number of tickets at \$12.50 _____
Amount enclosed: \$ _____

Letter from the Field

Tuco-Tucos, Bats and Rats

The Museum's Department of Mammalogy contains more than 250,000 specimens, including skins, skeletons, and fluid preserved animals. Our collection is used for study by Museum personnel and scientists all over the world. Although our collection is a large one, it contains many gaps. Legally-collected, well-documented specimens representing species we don't have yet are always welcome. Equally important are specimens representing new localities for species we already have. Comparing individuals of the same species from different parts of the world yields information about adaptations to different habitats, and comparing closely related species helps us better understand the processes of speciation.

The mammals of Bolivia and neighboring countries are little-known — a fact that inspired my interest in this part of the world. My research is on a group of small field mice that live in open areas from lowland subtropics to the Andes. By studying specimens collected previously, as well as those I collected on the trip described in the following excerpts from my field journal, I hope to determine how many species there are in this group, how they differ from one another and from related groups, and how they have adapted to their habitats.

8 September, 1984.

I write this while camping on the side of a mountain in Eastern-Central Bolivia with five other mammalogists from the American Museum of Natural History and the University of New Mexico at Albuquerque (UNM). Our camp, at 8,100 feet, overlooks the small village of Comarapa and the main highway connecting lowland Bolivia to the altiplano (a high, flat plain that lies between the two main ridges of the Andes). Perhaps the word "highway" is misleading. The road below us is a gravel one on which top speed, even on its best sections, is about 25 miles per hour. A more common speed is closer to 15 miles per hour.

Our expedition is headed by Dr. Sydney Anderson of the Museum and Dr. Terry Yates of UNM. Our goal is to collect as many kinds of mammals as possible, concentrating on the smallest, and to bring stuffed skins, skeletons, tissue samples and karyotypes (stained, mounted chromosomes) back with us to the Museum for future genetic and morphological studies.

Biologically, Bolivia is the poorest known country in South America. Transportation is primitive; many areas are inaccessible, and the unstable political situation discourages visitors. But we have arrived, have accomplished much already, and are enjoying firsthand knowledge of Bolivia and its mammals.

2 August, La Paz.

We spend our first week way up in the Andes. First we go to the city of La Paz to get supplies, talk to colleagues of the Museum of Natural History at La Paz, and obtain the collecting permits that must be shown to local officials while we're in the field. Everything must be very "official" here. The more seals, stamps, and elaborate signatures you can produce on paper, the better you will be received.

La Paz, at 12,500 feet, is the highest capital city in the world. It is built in a canyon bordering the altiplano. The elevation of the altiplano averages from 12,000 to 14,000 feet. It is a cold and windy place. During this time of year, winter, the weather is usually clear, sunny, and beautiful.

Most visitors to the altiplano experience altitude sickness, and those of us from the New York area (at sea level) are no exception to the rule. Altitude sickness generally consists of a headache, a quickened heartbeat and a queasy stomach. It seldom lasts more than a day.

The thinner air of this altitude has other physical effects once the initial shock is over. It normally takes several weeks at high elevation to become fully acclimatized — but our visit here will last only one week. So going up hills and stairs feels like a marathon event, and one drink here has the effect of four at home.

4 August, Huancaroma.

We are on a large ranch recommended to us by an official we spoke to in La Paz. There are large herds of cattle, sheep and alpaca here. Most of the open land is heavily grazed by the livestock, and is not good for trapping small mammals. Along the road, however, there is a rocky slope where we catch several species of small rodents.

8 August, Santa Cruz.

After a week at high altitude, it is a relief to be in the lowlands. We have flown into Santa Cruz, the most prosperous and most westernized of Bolivia's cities.

During most of the year, Santa Cruz is hot and humid. It is filled with palm trees, open-air restaurants and markets.

Our first days here are spent visiting friends from previous trips, colleagues, and more officials to whom we must show our permits and ask about accessible, productive collecting locales.

10 August, San Miguel Rincón.

After a three-hour drive on gravel roads, we have arrived in the little village of San Miguel Rincón. The only flat, open area where it's feasible to set up camp is the soccer field of the village school. We set up camp, under the eyes of thirty curious children aged four to twelve who may think of us as "crazy gringos," but nevertheless become our friends and helpers. Several of them are very interested in us and the animals we have already collected on the altiplano. They are eager to show us good places to set up traps. They ask questions about the animals we've caught and those we plan to catch, and want to know what we will do with the specimens when we return to our country.

On this trip, we particularly want to collect small mammals such as rats and bats, because they are the least known of the Bolivian mammals. We use both live traps and snap traps for rodents, and nets for the bats.

The most abundant group of animals here is one we're not too happy about — biting insects. Our legs soon became covered with tiny seed ticks and chigger bites. Mosquitoes bite our arms and faces at every opportunity. It's difficult to maintain unwavering enthusiasm for field work when you itch all over.

Here in San Miguel Rincón, we have collected a representative series of "tatas" (rats), "murciélagos" (bats), and a few marsupials (mostly opossums). All of the specimens represented will be welcome additions to the Museum collection, helping us to gain an increased understanding of their ranges, their structural and genetic variability, and their relationships to one another and to mammals in other areas of the world.



Market in Comarapa, Bolivia.



This little mouse-like marsupial lives a predominately arboreal existence.

On what is supposed to be our last day, we wait for a truck to pick us up. This being Bolivia, the truck arrives not only a day late, but almost out of gas. The kids who help us load the truck seem sad to see us go. Hours later, tired and hungry (we had timed our food supply to run out on what was supposed to be our last day), we finally make it back to Santa Cruz. So ends our introduction to the tropics.

20 August, Estancia Cachuela Esperanza.

Our next camp is on a large "estancia" (ranch) about 95 miles northeast of Santa Cruz. A Bolivian who knows the ranch's owner has recommended this place to us. With a gasoline strike on now, we don't want to be too far from the city. This is ideal.

The estancia contains many different habitats — open fields, thickets, crop fields, and rainforest. Parrots fly overhead constantly, and the forest is full of mammals including monkeys, foxes, opossums, rats and bats. During one night of bat netting we catch close to 200 bats! During the next two days we spend our time skinning, stuffing, and pulling tissues. The skins are stuffed with cotton, and the skeletons are roughly prepared (they will be properly cleaned in the Museum). We use liquid nitrogen to freeze pieces of body tissue to preserve them for genetic studies of protein variation.

Other mammals that we see either walking in the woods or after they are shot for food by ranch workers are armadillos, foxes, bush dogs, capybaras (the world's largest living rodents), collared and white-lipped peccaries, and — most exciting of all — an ocelot.

As we prepare to move on to our next site, once again no truck appears. This time we send part of the group back to Santa Cruz in our rented jeep to find out what has happened. The gas strike is still in progress, and the truck is out of fuel and stuck in town. Although our jeep is fairly reliable, it is far too small to hold all of us plus our field chests full of specimens, tents, sleeping bags, and other paraphernalia.

Fortunately, the strike is settled the following morning. We are all back in Santa Cruz late that night.

29 August, Santa Cruz.

We have spent the past few days trapping tucotucos in the vicinity of Santa Cruz. These burrowing rodents superficially resemble the pocket gophers of

North America, but they have no cheek pockets. In other morphological aspects, including skull structure and dental pattern, they are quite different from their North American "cousins" and are placed in a different family.

Tucotucos live in large burrows in sandy soil, and are not well known either ecologically or taxonomically. We catch them by putting specially designed traps down into their burrows. This technique is very successful, and it doesn't take long to get a small series.

3 September, Siberia Cloud Forest.

Next, we go to very different and spectacular habitats. Our first stop is in the Siberia Cloud Forest, an area in the mountains which is generally shrouded in fog. We are midway between the cities of Cochabamba and Santa Cruz, at an elevation of approximately 9,000 feet.

This is my favorite place. The forest is lush, the



The author outside her hotel in Santa Cruz.

trees are dripping with plants — lichens, exotic fungi, and arial plants that resemble Spanish moss. The ground is covered with many different species of mosses and ferns. It is cool during the day, and cold at night. Best of all, it is too cold and damp for pesty insects. We can work with our skin intact.

Trapping is good. We catch representatives of several genera of mice we haven't yet caught, as well as species we've trapped previously, but for which we can now obtain additional information about their ranges and habitats.

By the fifth day of living and working here, we are cold and damp, and ready for a new campsite. Even so, it is difficult to leave such a beautiful place.

8 September, Mountains above Comarapa.

We move about 9 miles back down the road. Even over such a small distance, there are dramatic changes in vegetation. It is still mountainous and the elevation is about the same, but instead of being damp it's dry and scrubby-looking.

Like most of populated Bolivia, this area is heavily grazed by domestic animals such as sheep and cattle, and has been inhabited for hundreds of years by native Bolivians. We see people herding sheep and farming as their ancestors did hundreds of years ago.

We catch representatives of several species, all different from the cloud forest species. We're pleased, even though with all of our 300-400 set traps we only catch a few animals — about three or four mice a night. It's the kind of area we had thought would be heavily populated by mice. It is covered with the thick, grassy clumps they seem to like.

Because of this low success rate, we are contemplating moving camp again, this time into a lower, more open valley a few kilometers back down the road. These valleys have tall cacti and trees, and presumably support different species of rats and bats from what we've seen.

While this trip is drawing to a close, I'm already looking forward to returning next year to see and learn more of Bolivia and its mammals. We've all gained far more from this trip than tucotucos, bats, and rats.

Nancy Olds

Nancy Olds is a graduate student in the Museum's Department of Mammalogy. The field trip described above was made possible by a generous three-year grant from the National Science Foundation.

Museum Notes

Special Exhibitions

Asante: Kingdom of Gold. Through March 17, 1985. This exhibit recreates the precolonial splendor of the Asante people and their west African kingdom. The thrust of the show is environmental, with special emphasis on the Asante world view interpreted through more than 800 artifacts from the British Museum, home of the greatest collection of Asante material outside Ghana. Gallery 3.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum scientists, archeologists, anthropologists, historians, and naturalists. For more

information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax

The Naturemax Theater is equipped with a movie screen four stories tall and sixty feet wide, as well as an extraordinary sound system and a projector for showing IMAX films.

made ten times larger than ordinary movies. The theater is located off the 77th Street lobby near the Great Canoe. Since schedules and films may vary, it is a good idea to call (212) 496-0900 for current information. Members receive a 50% discount.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Sunday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday and Saturday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses.

There are several independently operated garages within walking distance of the Museum.

Museum Information

Museum Hours: Monday, Tuesday, Thursday, Sunday 10:00 a.m. to 5:45 p.m.

Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance. Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays 3:30-7:00 p.m., Saturdays, Sundays and most holidays noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwest Research Station, Portal Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural

History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following programs and events:

□ March is Middle East Month at the Leonhardt People Center. See your March Rounda calendar.

□ March 19 through June 16 **Captured Motion: Skeletal Studies of S. Hannsted Chubb.** A selection of Chubb's skeletons will be exhibited, along with examples of the work of other scientists active in the study of animal movement. Gallery 1.

□ Beginning April 18 **John James Audubon: Science into Art.** This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth.

□ April 26 through July 28 **Maya: Treasures of an Ancient Civilization.** This temporary exhibition from the Albuquerque Museum will include stone reliefs, pottery, jade and other works of Mayan art.

Sat

Fri

Thu

Wed

Tue

Mon

Sun

February
1985

2 1:00 - 4:30 p.m. Black History Month. Creativity. Comparative Styles: African and Black American Weavers: The Spirituality of Black Literature; Black Inventors. Leonhardt People Center. Free

For gifts from around the world visit the Museum Gift Shops. Our Main Shop is located near the 77th Street entrance

Members receive special discounts on excellent books through our Members' Book Program. For a free catalogue, call (212) 873-1498

If you are free weekdays from nine to five, the Volunteer Office wants you. Call (212) 873-1300 ext. 538.

9 1:00 - 4:30 p.m. Black History Month. Africa Egypt Through the Eyes of L.D. Frazier. African Inspirations of Rhythm; African Adornment: Body Jewelry. Leonhardt People Center. Free.

7 7:00 p.m. Systematic Discussion Group Room 419. Free.

6 7:45 p.m. Amateur Astronomers Association. Linder Theater.

5 7:30 p.m. Poems of Darwin. Special Members' Program. Hall of Ocean Life. Free for Members. \$4.00 for non-members. See January Rotunda or call (212) 873-1327 for ticket availability.

Full Moon

4

3 1:00 - 4:30 p.m. Black History Month. Creativity. Comparative Styles: African & Black American Weavers; The Spirituality of Black Literature; Black Inventors. Leonhardt People Center. Free.

15 8:00 p.m. N.Y. Microscopical Society. Room 419. Free

14 7:30 p.m. Return of the Osprey. Members' Evening Program. Auditorium. Tickets required. Free and open only to Members. Page 2.

Valentine's Day

13 7:00 p.m. The Black West: Black Cowboys and Indians. Auditorium. Free. Page 2.
7:30 p.m. N.Y. Mineral Club. Leonhardt People Center. Free.

Members of the 600-mile Nile Cruise arrive in Cairo, Egypt. Discovery Tours: (212) 873-1440.

12 Last Quarter (half moon)
Lincoln's Birthday

11

10 1:00 - 4:30 p.m. Black History Month. Africa. Egypt Through the Eyes of L.D. Frazier. African Inspirations of Rhythm. African Adornment: Body Jewelry. Leonhardt People Center. Free.
2:00 and 4:00 p.m. A Touch of Folklore and More. African festival Dances. Kaufmann Theater. Free. Tickets distributed at first floor Information Desk at 12.15 p.m.

21

20

19 8:00 p.m. N.Y. Entomological Society. Room 323. Free. Spring Afternoon and Evening Lecture Series begin today. Page 1.

New Moon

18 Washington's Birthday (Observed)

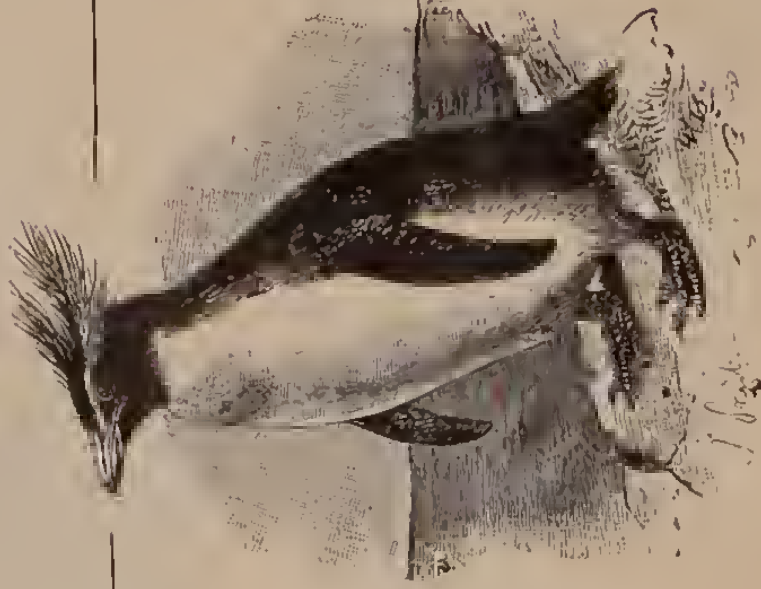
17 1:00 - 4:30 p.m. Black History Month. Heroes. Contemporary Heroes in the African Diaspora: Nat Turner Alias the Prophet, Black American Heroes and Pioneers. Leonhardt People Center. Free.
2:00 p.m. N.Y. Paleontological Society. Room 426. Free.
2:00 p.m. N.Y. Turtle & Tortoise Society. Room 129. Free.

28

27 7:30 p.m. Lapidary and Gem Society. Leonhardt People Center. Free.
First Quarter (half moon)

25

24 11:00 a.m., 1:30 and 3:30 p.m. Monkey in the Clouds. Members' Family Program. Kaufmann Theater. Tickets required. Page 4.
1:00 - 4:30 p.m. Black History Month. Black Musical Genius. Origins of Gospel Music; Blues Heritage; Roots of African American Music. Leonhardt People Center. Free.



Moon is at apogee

American Museum
of Natural History

POTPOURRI

For Participating, Donor, and Contributing Members of the American Museum of Natural History

Vol. 10, No. 3 March 1985



The Mahakala and Attendants, gauche an cattan, Tibet 16th century. The Mahakala is one of the Tantric Manks' most important deities.

Tibetan Tantric Rituals (U.S. Premiere)

Wednesday, March 20, 7:30 p.m. in the Main Auditorium, and
Thursday, March 21, 7:30 p.m. in the Hall of Ocean Life
\$7.50 for Members and students with i.d. \$12.50 for non-members

*Protect me from falling under the power of defilements,
Eyes blinded by the film of ignorance;
And from fears of happiness and misery
O Ocean of Compassion, protect me.**

This month marks the premiere United States performance of the Gyuto Tantric Monks. Accompanied by the Tibetan long trumpet (rag-dung), the thigh-bone horn (rkang-gling) and various other wind and percussion instruments, the Monks will perform several ritual chants for Museum visitors.

With resonant bass voices that are capable of producing three-note chords, the Gyuto Tantric Monks evoke and invoke deities of compassion and destruction, healing and wrath. Their rituals, which include the chanting of tantric text and the crea-

tion of mandalas, make it possible for the initiated to attain enlightenment during the course of one lifetime — a possibility that, among Buddhists, only the Tantric sects believe exists.

Once, the chanting of the ancient Tibetan text was considered inappropriate, even destructive, to a listener uninitiated in Tantric teachings. But now during what Tantric Buddhists call the *kali yuga* (iron age), the most degenerate age of humanity, the Monks wish to share certain of their rituals for the benefit of people throughout the world.

Present to discuss the rituals so that the Westerner can better comprehend them will be Dr. Robert Thurman, an American Buddhist scholar and friend of His Holiness the Dalai Lama.

The program has been made possible by American Landmark Festivals

(in cooperation with the National Park Service), the Museum, and His Holiness the Dalai Lama who granted permission for the Monks to tour the United States.

To register for *Tantric Rituals*, please use the Members' Programs Coupon on page 6.

WNYC TV will join the Museum in welcoming the Gyuto Tantric Monks to the United States by broadcasting the film *Tantra of Gyuto — Sacred Rituals of Tibet*. This film can be seen on Channel 31 (cable channel 3 in Manhattan) at 10:00 p.m. on Monday, April 8 and at 9:00 p.m. on Friday, April 12.

* From "A Prayer of Refuge," translated from the Tibetan by Brian Cuttillo of M.I.T., Cambridge, Mass

Man and Nature

How does a fertilized egg become a functioning human being? How does a three-dimensional organism develop from a one-dimensional genetic code? Join Dr. Gerald Edelman for five exciting April lectures on biology and humanity.
Page 3

World of Animals

The spiny hedgehog, the peregrine falcon and other unique creatures are the subject of next month's Members' Program with naturalist Bill Robinson.
Page 6

Whales

For the first time in history the sperm whale has been filmed and photographed underwater. The resulting documentary is one of the highlights of a March program devoted to whales and other sea mammals.
Page 2

For Young People

Children can learn to take their own blood pressure, make masks, understand Native American lore, and observe plants and animals in the Museum's latest potpourri of children's workshops.
Page 4

Heavenly Knowledge

Learn to navigate a boat, use a telescope, understand the ideas upon which modern science fiction novels are based, and much more in this season's *Courses for Stargazers*.
Page 4

Bones in Motion

Exhibition opens March 19 in Gallery 1

Museum visitors will have a chance to observe and appreciate the grace and precision of the articulated skeletons of

modern animals in the new exhibition *Captured Motion: Skeletal Studies of S. Harsted Chubb*. The

mounts on display, which visitors can view from a variety of angles, will show how an animal places its feet while running or walking, and how it coordinates its entire skeleton during motion.

Horse lovers will enjoy seeing a rearing horse juxtaposed with a human reaching upward (see photo at left), a draft horse at work, and a wild horse fleeing from a wolf. The mounted skeletons of champion race horses Sysonby and Axworthy, suspended in prize-winning strides, will be included in the exhibition.

Mr. Chubb, who died in 1949, was considered the world's leading expert on animal movement. The son of a physician, his considerable skills as a machinist, naturalist, artist and photographer enabled him to produce specimens of articulated skeletons that are both accurate and aesthetically pleasing.

Mr. Chubb was an osteologist at the Museum for four decades, and first mounted the specimens to be displayed between 1903 and 1949. His pioneer work in the fields of animal osteology and motion have enabled artists, physicians, zoologists, other scientists, and breeders to better study the dynamics of animal skeletons in motion.

Captured Motion will also contain three fascinating videotapes about animal motion. A cineradiograph will show what happens within the body of a sloth when it swallows a carrot. Visitors will be able to see the motions of the animals bones and teeth, as well as obtain a true insider's view of the swallowing mechanism. There will also be short videotapes of a running horse and a swimming muskrat.



These Chubb skeletons of a human being reaching and a horse rearing are included in the exhibition. They are also the Museum logo.

The World of Whales

Wednesday, March 13,
7:30 p.m.

Main Auditorium

\$6 for Members, \$7 for non-members

The social behavior and ecology of the sperm whale is only now beginning to be understood. For the first time ever, you can follow these whales in their world beneath the water in *Shadows and Footprints: Great Whales of Sri Lanka*.

This beautiful film, produced and directed by James Donaldson, was made during three consecutive expeditions to the Indian Ocean Whale Sanctuary near Sri Lanka. Produced in conjunction with the World Wildlife Fund, the film follows scientists as they interact with whales under-

water, in a quest to understand these giants of the sea. Narrated by Gregory Peck and with an original score by Paul Winter, *Shadows and Footprints* also contains footage of the blue whale and the brydes whale.

Following the film, learn more about whales and other sea mammals from staff members of the New England Aquarium. They will speak about the Marine Mammal Stranding Center, which reports on, studies, and saves numerous sea mammals each year, including whales, porpoises, and seals. Much of our

current knowledge of sea mammals' reproduction, diet, physiology and behavior comes from studying animals that have been found stranded — both dead and alive.

This program is sponsored by the American Littoral Society. To order tickets, please mail a check made out to the American Littoral Society along with a stamped, self-addressed envelope to: American Littoral Society, Highlands, New Jersey 07732. After March 8, please call the Society at (201) 291-0055 for ticket availability.

Facelift of 1985

As of press time, workers near the Central Park West entrance of the Museum were beginning construction of a new temporary entrance. This entrance will substitute for the regular Roosevelt Plaza entrance when the Roosevelt facade receives a major renovation in the near future.

Over many years, the Roosevelt Memorial steps and plaza have become uneven due to shifting, front heaving, and exfoliation (the disintegration of stone in layers). Refurbishment of this area will include disassembling and cleaning the Roosevelt steps and plaza stone by stone, and driving piles into the facade's foundation to reinforce its structural support.

The temporary entrance, just north of the regular one, will lead Museum visitors into the Biology of Birds Hall. From there, the rest of the Museum will be easily accessible. The Museum's other entrances will be unaffected by the construction work.

Concurrent with the Roosevelt Plaza renovation, the MTA will construct a new electrical substation adjoining the subway station below Central Park West at 79th Street. A walkway will remain open for pedestrians at all times, and all subway entrances will remain open.

Future issues of *Rotunda* will provide updated information on the Roosevelt Plaza renovation.

ROTUNDA

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This is a Chubb skeleton of a donkey in the act of scratching its leg.

The Ninth Annual Mack Lipkin MAN AND NATURE LECTURES The Sciences of Recognition

by
Dr. Gerald M. Edelman

April 8, 10, 12, 15 and 17

7:00 p.m.

Main Auditorium

\$10.00 for Members, \$20.00 for non-members



Dr. Gerald M. Edelman

Gerald M. Edelman is Vincent Astor Distinguished Professor at Rockefeller University. In 1972, he won the Nobel Prize in Medicine or Physiology for describing the structure of gamma globulin, a protein which plays a crucial role in immunological responses. Dr. Edelman's current research on embryonic development, the structure of proteins, defects in the nervous system and his theoretical work on the organization of higher brain functions have taken him to the frontiers of scientific knowledge.

In an extraordinary series of five lectures, Dr. Edelman will discuss his work and the fascinating biological mysteries he is trying to solve. The lectures will begin with a look at how life has evolved from simple single celled organisms to the complex life forms of

the present. Then, Dr. Edelman will discuss what is perhaps the grandest outstanding puzzle in biology and one that has fascinated scientists since ancient times: By what processes does an embryo grow from a fertilized egg to a functioning adult? How does a one-dimensional genetic code lead to the development of a three-dimensional organism?

After considering the immune system's recognition of foreign molecules, he will discuss recent experiments and theories on the nature and function of the human brain.

Monday, April 8. Evolution: Adaptation and Organized Complexity.

Wednesday, April 10. Developmental Biology: Molecular Bases of Animal Form

Friday, April 12. Immunology: Selection and Instruction.

Monday, April 15. Neurobiology: Categorization and Learning

Wednesday, April 17. The Grand Loop: Evolution and Awareness.

The Mack Lipkin Man and Nature Lectures were established by friends of Dr. Lipkin in recognition of his contributions to biomedical science and education. In presenting the ninth annual Man and Nature Lectures, Dr. Edelman joins a distinguished array of scientists who have discussed their work and its impact on the critical challenges facing humanity. Past speakers have included Jacob Bronowski, Margaret Mead, David Hamburg and Lewis Thomas.

To register, please use the Members' Coupon on page 6.

The Shadows of Myths

Saturday, March 9

1:00 p.m.

Kaufmann Theater

Free

The shadow play is one of the most ancient forms of theater. Combining slapstick comedy with high drama, it dips into the mythical stories of the past to bring to light the current situation of human beings. In a bilingual (English and Kawi) performance designed to delight Museum visitors of all ages, the Shadow Play Theater Company will present *Wayang Kulit: The Traditional Shadow Play of Bali*.

In *Wayang Kulit*, a lone puppeteer called the *Dalang*, impersonates as many as twenty different characters with beautiful carved leather puppets illuminated behind a translucent screen. While the stories follow traditional plots, the dialogue is always improvised. The main characters speak a mysterious language unknown to the audience,

while other characters such as buffoons translate the goings-on. The *Dalang* is accompanied by the fast-paced interlocking rhythms of two to four bronze xylophones.

The Shadow Play Theater Company has performed Balinese shadow plays in this country since 1974 at international puppet festivals, universities, museums, and schools.

Seating for the program is on a first-come first-served basis. For additional information, please call (212) 873-1300, ext. 559.

Those of you with a special interest in shadow puppets can find several of great beauty in the new *Hall of Pacific Peoples*, as well as in the small lobby near the Kaufmann and Linder Theaters of the Dana Education Wing.

The Maya

Exhibition Opens Friday, April 26

Members' Viewing Monday, April 29

6:00, 7:00, and 8:00 p.m.

The Maya civilization has vanished. The hows and whys of its disappearance are still not known.

What we do know is that this civilization, which once flourished in parts of southern Mexico and Central America, created thriving cities, great intellectual accomplishments, a fascinating mythological world, and superb works of art.

Maya artisans were renowned for their technical ingenuity and aesthetic concepts. They chose from among a wide variety of subjects, ranging from images of serenity to scenes of death, warfare and human sacrifice.

Maya: Treasures of an Ancient Civilization, the first comprehensive exhibition of art treasures representing 3,500 years of Maya history, will open its North American Tour at the Museum next month. The new exhibition will contain artifacts made of gold, jade, wood, shell, and clay. Outstanding pieces on display will include examples of Swasey pottery (the oldest known ceramics from the Maya region), and stone sculptures representing important Mexican deities such as Quetzalcoatl, the plumed serpent.

While the objects on display are beautiful in themselves, the historical, economic, and cultural contexts in which they were made are equally

fascinating, and will be a major emphasis of the exhibition. The Mayan people's achievements in astronomy, calendrics, hieroglyphic writing and architecture will also be explored.

Our special Members' Viewing of the exhibition will include a cash bar and musical entertainment by Jim Berenholtz of Taos, New Mexico, and Mazatl Galindo of Mexico City. These musicians play instruments indigenous to the American Southwest, Mexico, and Central America. Turtle shell and bamboo drums, conch trumpets, and clay flutes in the shapes of animals are among the instruments Members will see and hear.

Berenholtz and Galindo make use of poetry and indigenous languages to express pre-Columbian myths and awaken our memory of an ancient, mystical world.

Maya: Treasures of an Ancient Civilization has been organized by the Albuquerque Museum. It has been funded by grants from the National Endowment for the Arts, the Albuquerque Museum Foundation, the City of Albuquerque, and the New Mexico Economic Development and Tourism Department.

To register for the Members' Viewing, please use the Members' Programs Coupon on page 6.

Workshops for Young People

All About You

Grades 6, 7 and 8
Five Sundays: April 21, 28;
May 5, 19; June 2 (No
session on May 12).
10:30 a.m.-12:00 noon
Fee: \$25 (\$23 for Members)

Take your own blood pressure, listen to your heartbeat, see how blood flows, and "tune in" your senses. Through a series of activities like these, students learn how their bodies work. Using the microscope and various experiments, students acquire a better understanding of their own anatomy and physiology. Taught by Dr. Betty Faber, Entomologist.

Nature Activities for the Very Young

Grades 1 and 2
Four Sundays: April 21, 28;
May 5, 19 (No session on
May 12).

Section A: 10:15-11:15 a.m.
or

Section B: 11:30 a.m.-
12:30 p.m.

Fee: \$20 (\$18 for Members)

Children participate in springtime nature activities, from growing seeds to learning about different kinds of leaves. They discover animals that are beginning to stir in the warming ground and those returning by air from the south. Using the Alexander M. White Natural Science Center, children explore the seasonal changes that occur in the surrounding city environment. Taught by Mary Croft of the Museum's Education Department.

Mask Making

Grades 4, 5 and 6
Two Sundays: May 19 and
June 2 (No session on
May 26).

3:00-5:00 p.m.
Fee: \$12 (\$10 for Members)

In this two-session course, children are introduced to African and Native American cultures. Using the Museum's exhibition halls, and making their own masks, they begin to understand different ways of life and the spiritual significance behind the masks. Materials provided. Taught by Juliette Leff, Art Education Specialist.

Half-Day

Saturday

Workshops

For the following workshops, students should bring a bag lunch. Sessions run from 10:30 a.m. to 1:30 p.m.

Dinosaurs

Grades 5 and 6
April 20
Fee: \$10 (\$9.00 for Members)

Dinosaurs of many different kinds, shapes and sizes dominated the earth for almost 150 million years. Yet they became extinct. Why? Students explore this question during a visit to the Museum's world-famous dinosaur halls. Students also learn about fossil collecting and how to make a fossil replica. Taught by Brumic Brandon of the

Museum's Education Department.

Endangered Mammals

Grades 5 and 6
April 27
Fee: \$10 (\$9 for Members)

What do the African elephant, the cheetah and the blue whale all have in common? Their survival is threatened. While many species are protected, large numbers remain endangered. Discover more about vanishing animals and their habitats by viewing films and Museum exhibition halls. Taught by Jean Augustin of the Museum's Mammalogy Department.

Native American Lore and Legend

Grades 3, 4 and 5
April 27
Fee: \$10 (\$9 for Members)

To Native Americans the land, plants and animals of the natural world are gifts from the Creator, gifts to be used and respected. Students will develop an understanding of American Indian traditions, beliefs, and values through stories, crafts, films, and a visit to the Museum's Eastern Woodlands and Plains, and Northwest Coast Indian Halls. Taught by Rob Bernstein, Instructor at the New York Botanical Gardens.

Secrets of the Sea

Grades 6 and 7
May 4
Fee: \$10 (\$9 for Members)

Explore the underwater world of sea animals — locomotion, smell, taste, and protection. Students study a variety of marine animals and learn about their behavior and adaptations. Slides, films and the Museum's Hall of Ocean Life will be used in this survey of the undersea world. Taught by Lisa Breslow of the Museum's Education Department.

Origami

Grades 5, 6 and 7
May 4
Fee: \$10 (\$9 for Members)

Origami is a Japanese word for the centuries-old art of folding single sheets of paper, without the aid of scissors or paste, to create objects. This

introductory workshop includes learning to fold a sailboat, a butterfly, and a straw-berly — as well as special things to be decided by the students. Taught by Michael Shall, professional paper folder and volunteer origami specialist at the Museum.

Meteorites, Minerals and Gems

Grades 7 and 8
May 11
Fee: \$10 (\$9 for Members)

Meteorites from outer space, rocks of the earth's crust, sand on a beach, the salt on our food, metals and most gems are composed of minerals. Students will visit Museum exhibition halls to discuss mineral relationships and classification, the formation of minerals and why some have such value for us. Taught by Joseph Peters of the Museum's Mineral Sciences Department.

Central Park Ecology Expedition

Grades 6 and 7
May 18
Fee: \$10 (\$9 for Members)

Experience the arrival of spring as an urban field biologist. Students use the Museum's Alexander M. White Natural Science Center, and the wooded areas and meadows of Central Park for study. Construct a food web, investigate the behavior of some common animals, and examine life in a drop of pond water. Taught by Brumic Brandon of the Museum's Education Department.

World of Reptiles

Grades 4, 5 and 6
June 1
Fee: \$10 (\$9 for Members)

Feel a live snake. Watch a lizard feed. Learn whether a turtle can breathe under water. Students observe and discover the amazing adaptations and behaviors of these animals. Through slides and a visit to the Museum's Hall of Reptiles and Amphibians, students explore the animals' defense behavior, locomotion, and habitats. Taught by Dave Brody of the Museum's Entomology Department.

Courses for Stargazers

Astronomy

Introduction to Astronomy. Topics include the earth as a planet, the moon, the solar system and sun, the stars, the Milky Way, galaxies, quasars, and black holes in space. No previous knowledge of astronomy is assumed. Eight Tuesdays beginning April 9. 6:30-8:40 p.m. \$70 (\$63 for Members).

Stars, Constellations and Legends. An introduction to the lore of the sky. No prerequisites. Five Tuesdays beginning April 9. 6:30-8:10 p.m. \$50 (\$45 for Members).

Charting the Cosmos. This course will explore some of the interesting and unusual aspects of the "geography" of the heavens. Five Mondays beginning April 8. 6:30-8:40 p.m. \$50 (\$45 for Members).

How to Use a Telescope. An introduction to choosing and using a small amateur telescope. No previous knowledge of astronomy is assumed. Eight Wednesdays beginning April 10. 6:30-8:30 p.m. \$70 (\$63 for Members).

Astrophotography. A comprehensive survey of the techniques of photographing the heavens, both with and without a telescope. No previous knowledge of the subject is assumed. Seven Thursdays beginning April 11. 6:30-8:40 p.m. \$65 (\$58.00 for Members).

Aviation

Ground School for Private and Commercial Pilots. Introduction in preparation for the FAA written examination for a private or commercial license. Fourteen sessions on Mondays and Wednesdays beginning April 8. 6:30-8:40 p.m. \$175 (\$157 for Members).

Ground School for Instrument Pilots. Intended for those planning to take the FAA written examination for an instrument license. Four-

teen sessions on Mondays and Wednesdays beginning April 15. 6:30-8:40 p.m. \$175 (\$157 for Members).

Navigation

Navigation in Coastal Waters. An introduction to piloting and dead reckoning for present and prospective owners of small boats. No prerequisites. Eight Thursdays beginning April 11. 6:30-9:00 p.m. \$95 (\$85 for Members).

Introduction to Celestial Navigation. This course covers the theory and practice of celestial navigation, the sextant and its use, and the complete solution for a line of position. Prerequisite: Completion of *Navigation in Coastal Waters* or equivalent piloting experience. Eight Tuesdays beginning April 9. 6:30-9:00 p.m. \$95 (\$85 for Members).

Advanced Celestial Navigation. Includes navigation subjects not covered in the introductory course, with additional practice problems for solution of the celestial line of position, latitude by meridian transit of the sun and other celestial bodies, and more. Prerequisite: *Introduction to Celestial Navigation*, or equivalent experience with the permission of the instructor. Eight Mondays beginning April 8. 6:30-8:40 p.m. \$70 (\$63 for Members).

Science Fiction

Science and Science Fiction. This intermediate-level course will discuss the scientific facts and ideas (as well as some of the fallacies) found in selected science fiction novels. Students are expected to read two or three science fiction novels and three short stories (assigned at the start of the course). Eight Thursdays beginning April 11. 6:30-8:40 p.m. \$70 (\$63 for Members).

I would like to register for the following Planetarium course(s):

Course(s): _____ Price: _____

Class beginning: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail this registration coupon and a check payable to the American Museum-Hayden Planetarium to: The Hayden Planetarium, Central Park West at 81st Street, New York, NY 10024. Mail registration will be accepted until March 25. After that date, please call 873-1300 ext. 206 for information. In the event that a student withdraws from a course, a fee of \$10.00 and charges for sessions attended will be made on all refunds of tuition. No refunds can be made after the second session. Courses may be cancelled without prior notice, with full refund of tuition.

I would like to register for the following Workshop(s):

Workshop(s): _____

Student's last name: _____ First: _____

Age: _____ Grade: _____ Daytime phone: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

I enclose a stamped, self-addressed envelope and a check for \$ _____ payable to the American Museum of Natural History. Mail to: Workshops for Young People, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Figures of Speech and Gold — or — “I am Not a Mudfish”

In 1881 a delegation of high-ranking officials from the Asante nation was sent to negotiate with the British governor on the Gold Coast of Africa. The senior Asante in the delegation stated his intentions by saying “I have come down to stop all those small leaks in the roof which have been giving us trouble as of late. If I cannot do this, we must have a new roof.”

This was interpreted by the British to mean “I have come for peace,” and Governor Rowe replied by stating his own peaceful intentions. He ended his reply, however, with the ambiguous comment, “I am not a mudfish.”

Native informants present at the meeting interpreted this remark in several different ways. One said Rowe was not a mudfish that buries itself and is easily caught, meaning he was not a fool. Another thought that since the mudfish stirs up mud to remain hidden, the governor was declaring his openness. A third said the mudfish has venomous spines, so Rowe meant he did not wish to harm the Asante. A colonial official had yet another interpretation — that a mudfish is a worthless creature, and the governor was making it clear that he was not!

While many of the expressions and sayings in our culture are quite literal, with little room for subtlety or ambiguity, this was not the case with the Asante, who dominated the Gold Coast of modern-day Ghana during the 18th and 19th centuries. Their lack of written language made it necessary for the Asante to formulate a highly-developed level of verbal and visual communication that could serve their complex, hierarchical society.

This led to problems in diplomacy with the Europeans, who sought to gain control over the Asante-ruled area. The literal European mind consistently miscalculated the intentions of the Asante by failing to understand that indigenous peoples might think, act, and speak symbolically or metaphorically. When the British overthrew the Asante government in Kumase in 1896, they typically regarded the Asante as illiterate savages, overlooking the highly subtle, verbal character of Asante court art and the allusiveness of Asante speechmaking and negotiating. But while cultural chauvinism was certainly an important excuse for British imperialism, an even greater motivation existed — the Asante were rich in gold and other valuable natural resources.

The importance of gold in Asante culture and economics was spectacular. A portion of all that was produced went to adorn the ruling group. Asante rulers, particularly the Asantehene (king), displayed their riches to impress the public, to illustrate differences in rank or class, and to commemorate historical events.

Regalia designed to bedazzle the populace and visitors also conveyed subtle messages to those learned in native traditions, as many items were intended to allude to proverbs or aphorisms. Knowledge of such sayings was essential for a person to advance in Asante society, and was used to represent traditional wisdom and to influence debates and arguments.

Along with the richness and wit of Asante speech went reluctance to speak directly of important matters. By offering proverbs with various possible meanings, a matter could be discussed and explored in a wide number of sayings without being referred to explicitly, as in the conversation between the Asante delegate and the British governor.

One highly developed art form in which the Asante love of proverb was demonstrated was the small cast-brass goldweights used to measure quantities of gold dust, the Asante currency. Original and painstaking in detail, sets of goldweights like those on display in the Asante: Kingdom of Gold exhibition were a common possession in Asante households and were essential for doing business of any kind. The representational weights that became more abundant in the 18th and 19th centuries depicted many popular everyday objects and scenes, as well as flora and fauna, which were often associated with proverbs.

A goldweight including a crocodile, for example, might suggest several proverbs that metaphorically reveal various possible relationships of the strong to the weak, or allude to the nature of water dwellers who also sometimes move on land.

“When you are safe on the riverbank, then you can tell the crocodile that it has a lump on its snout!”



This hollow “goldweight,” made of bronze, was used by the Asante to measure gold dust. It was cast in the image of a lion to symbolize the sun’s fire and the glory of kingship.

might indicate that one should not make remarks about a dangerous person until one is at a safe distance! A weight showing a crocodile swallowing a mudfish is associated with the proverb “If the mudfish grows fat, it does so to the advantage of the crocodile,” which may be interpreted to mean that the prosperity of a servant is to the advantage of the master.

Two crossed crocodiles who are attached to one another at the stomach and yet fight over the food they come across form a symbol making fun of greediness and egoism. One can remark that this struggle is a ridiculous one, since no matter which animal swallows, the food will end up in the same stomach, nourishing both. Conversely, one can play devil’s advocate by pointing out that the enjoyment of food involves not only the stomach but the palate as well, making the act of eating a matter of great importance.

Asante children often learned the names of goldweights in current use from their parents and grandparents. Undoubtedly, they also learned the maxims associated with certain images, which were often didactic in nature. A canoe for example, which must be paddled from both sides, would serve to indicate that “in unity there is strength.”

The levels of meaning inherent in these types of visual-verbal images varied according to one’s place in the hierarchical structure of Asante society. The growth of a central government in Kumase during the 18th and 19th centuries led to problems in running a large empire without a literate class. Accordingly, once-functional objects such as swords or stools were elaborated as art forms and made to serve as regalia which identified the rank of the bearer as well as expressing ideas about political and moral relationships. An Asantehene-elect could exercise real power only upon commanding sufficient allegiance of a strong group within the kingdom, gaining access to the Great Chest containing the treasury, and receiving custody of the golden stool that was believed to incorporate the soul of the Asante nation and symbolize its unity.

The story of the golden stool serves as a strong reminder of the mingling of myth and reality inherent in the verbal-visual nature of Asante Culture.

As the story goes, a chiel, or omanhene named Osei Tutu ruled a state of the Asante Federation near Kumase in the early 18th century. Like all Asante chiefs, he had a sacred stool which symbolized the spiritual unity of his state and was believed to contain the state’s soul.

Osei Tutu’s high priest Anokye planted a kumnini tree which he announced would flourish as Osei Tutu’s leadership skills and power grew. The tree

did flourish, and state councils were held beneath it.

Legend has it that Anokye and Osei Tutu were sitting under the kumnini tree during a tremendous wind and dust storm, when they observed a golden stool descending slowly from heaven. Amazed, they watched as the stool gently set down on Osei Tutu’s knees.

Anokye quickly summoned the various state chiefs to Kumase. He told them of the miracle, which he interpreted as a sign that Osei Tutu had been chosen by the gods to be king of kings, or Asantehene. Anokye declared that the golden stool the chiefs saw before them now contained the sunsum or soul of all Asante people and their ancestors, and that to preserve the stool a blood oath must be sworn of unfailing allegiance to the new Asantehene, now king of all the Asante. The embodiment of this powerful myth in a physical symbol helped unite the Asante federation under a central government for almost 200 years.

By the end of the 19th century, written communication between the Kumase government and Europeans on the coast had become more common, but diplomatic negotiations were still carried out, by Asante preference, through speech.

The Asante’s desire to explore a range of possibilities to resolve their differences with the British was ultimately unsuccessful. In 1896 the British invaded Kumase. Four years later they seized the Asantehene Prempe I and many of his major chiefs and advisors, took them to the coast, and from there sent them into a long exile in the Seychelles.

The golden stool, symbol of the Asante nation’s power and life forces, disappeared when the British established colonial rule. It was thought to be lost, fulfilling the prophecy that should the stool ever be destroyed or captured, the Asante nation would sicken and die.

As was discovered many years later, a few Asante men had buried the stool in the forest to keep it from the British. It was recovered in 1920, and four years later the Asantehene was allowed to return from exile. The Asante confederacy was restored under Prempe II in 1935.

Despite great changes that have occurred in Ghana in the past five decades, the proud Asante people today still retain much of the subtlety, wit and sophistication that characterized their culture in its great imperial heyday.

The rich heritage of this proud African people is celebrated in the special exhibition Asante: Kingdom of Gold, on view in Gallery 3 through March 17.

— Barbara Sawicz

March Members' Programs Coupon

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total amount enclosed: \$ _____

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: *March Membership Coupon*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Tantric Rituals. \$7.50 for Members and students with i.d. \$12.50 for non-members. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price. Associates and students with i.d. are entitled to one. Please indicate a preference of dates.

_____ Wednesday, March 20, 7:30 p.m.
_____ Thursday, March 21, 7:30 p.m.

Number of tickets at \$7.50 each: _____
Number of tickets at \$12.50 each: _____
Amount enclosed for program: \$ _____

Man and Nature. April 8, 10, 12, 15, and 17. Participating, Donor and Elected Members are entitled to six series tickets at the Members' price of \$10.00. Associates are entitled to two. All other tickets are \$20.00. Only series tickets may be ordered in advance. Tickets for individual lectures may be purchased at the door on the day of the program. Individual ticket prices will be \$4.00 for Members and \$5.00 for non-members.

Number of series tickets at \$10 each: _____
Number of series tickets at \$20 each: _____
Amount enclosed for program: _____

The World of Animals. Sunday, April 14. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3. Please indicate your first and second time preference.

_____ 11:00 a.m. _____ 1:00 p.m.
_____ 2:30 p.m. _____ 4:00 p.m.

Number of free tickets: _____
Number of tickets at \$3 each: _____
Amount enclosed for program: \$ _____

Members' Opening for Maya: Treasures of an Ancient Civilization. Monday, April 29. Free and open only to Participating, Donor and Contributing Members. Please indicate your first and second time preference.

_____ 6:00 p.m. _____ 7:00 p.m. _____ 8:00 p.m.

Number of tickets requested: _____

Music From Around the World

Three Tuesday Evenings Beginning March 12
7:00 — 9:30 p.m.
Main Auditorium

Music and musicians from around the world convene at the Museum this month for the three-part concert series *Reeds, Horns, Drums and Gongs: A Spring Festival of Music*.

On March 12 David Amram plays the French horn and Native American flute, and hosts several other musicians including the acclaimed Andean group Tahuantinsuyo.

On March 19 and 26 concert-goers will hear everything from the Uilleann pipes of the British Isles to the Middle Eastern dumbeg and the Chinese zheng.

Series tickets for the concerts are \$22.50 for Members, \$25 for non-members. Tickets for individual concerts will be sold on the night of each performance if available. Individual tickets are \$9.00 for Members, \$10.00 for non-members. Call (212) 873-7507 for additional information.



Ralph Samuelson plays the Shakuhachi (Japanese flute), on Tuesday, March 12. Many other instruments and artists will be featured in this concert series.

The World of Animals

Sunday, April 14, 11:00 a.m. and 1:00, 2:30 and 4:00 p.m.
Kaufmann Theater
Free and open only to Members

The spiny hedgehog has approximately 16,000 spines on its back, rolls up into a ball when threatened, and can tolerate poisons that would easily kill humans and other mammals. Its diet includes wasps and bees. One hardy hedgehog is reported to have sustained fifty-two bee stings without showing any signs of discomfort. This remarkable creature, along with an array of others, will join Bill Robinson when he presents *The World of Animals*.

During this program, Members will also view the amazing agility and jumping ability of the African Galagao, better known as the bushbaby because its shrieks are reminiscent of yelling children.

A hawk, an eagle and a peregrine falcon will also take part in the program. The latter can fly more than 150 miles an hour, and considers urban skyscrapers to be perfectly fine nesting places. Once wiped out of the Eastern United States by DDT and

other pesticides, the peregrine falcon is now being reintroduced into the region.

Bill Robinson has appeared at numerous Members' programs in the past, and is one of our most popular lecturers. In addition to presenting wildlife programs for schools and institutions throughout the region, he is involved in reintroducing orphaned birds of prey into the wild.

To register for *The World of Animals*, please use the adjacent Members' Coupon.

Alborada Latina

Sunday, March 17, 2:00 and 4:00 p.m.
Kaufmann Theater Free

Experience the beauty and intensity of Latin American music from light-hearted folk music to works of intriguing complexity, as the group *Alborada Latina* performs in a program created especially for children.

Alborada Latina's repertoire includes classical and traditional music by Latin American composers such as Hector

Villa-Lobos, Simon Diaz, and many others. In addition, the group performs classical favorites by Bach, Rossini and Poulenc, and contemporary works by young American composers.

Children will be delighted by the sounds of flute, cello, bass, xylophone, tambourine, and conga drum, and will hear popular Latin American

songs like "La Cucaracha" and "Cuando Te Vas."

Seating for this program is on a first-come, first-served basis. No tickets are required. *Alborada Latina* is made possible through the cooperation of Young Audiences. For additional information, call the Museum's Department of Education at (212) 873-1300, ext. 514.

Museum Notes

Special Exhibitions

Captured Motion: Skeletal Studies of S. Harmsted Chubb. March 19 to June 16, 1985. See page 2.

Mountain of the Mist. Through September 2. A new photo exhibition about the Neblina expedition in Venezuela. Akeley Gallery. **Asante: Kingdom of**

Gold. Through March 17, 1985. This exhibit recreates the precolonial splendor of the Asante people and their west African kingdom. The thrust of the show is environmental, with special emphasis on the Asante world view interpreted through more than 800 artifacts from the British Museum, home of the greatest collection of Asante material outside Ghana. Gallery 3.

Programs and Tours

Museum Highlights
Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

On New York's largest movie screen — 4 stories tall and 60 feet wide — the

Naturemax Theater continues to dazzle audiences with two all-time favorite IMAX films: "To Fly!", a breathtaking view of the history of flight from hot-air balloons through rockets into space; and "Living Planet", an ecological tour of some of the earth's most awesome sights.

The box office is located in the 77th St. lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri.,

11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following programs and events:

- Beginning April 18: *John James Audubon: Science into Art*. This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth.
- April 26 through July 28: *Maya. Treasures of an Ancient Civilization*. This temporary exhibition from the Albuquerque Museum will include stone reliefs, pottery, jade and other works of art.



This bizarre-looking plant is *Besmettia magellanica*, a member of the tea family, and a component of the fascinating flora found in Neblina or Mountain of the Mist. See Mountain of the Mist listing, above.

Richard G. Zweifel

Happenings at the Hayden

Sky Shows

The Violent Universe. Narrated by Vincent Price. Through June 24. Black holes, exploding galaxies and the birth of the cosmos itself. In this exciting program, an unprecedented array of special effects will take you on a tour of our dynamic and fascinating universe.

Sky Show admission for Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and for sky show times, please call (212) 873-8828.

Wonderful Sky

Through dialogue, song and audience participation, children explore rainbows, sunsets, and distant, sparkling stars in this special Sky Show for children from three to six years of age. This popular show features images of children's favorite Sesame Street Muppets, including Big Bird, Oscar, and Cookie Monster. For Wonderful Sky® informa-

tion, please call (212) 873-5714.

©1985, Children's Television Workshop; Muppets, Inc.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings.

Through April 27: *Heavy Laser.* Features the music of The Police, Van Halen, The Who, and Rush at 7:30, 9:00 and 10:30 p.m.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

The Planetarium offers many programs for young children. For school information call (212) 873-8828.

It is always a good idea to call before coming. All prices and show times are subject to change without notice.



With the energy of trillions of hydrogen bombs, a supernova explodes in a scene from *The Violent Universe*, now at the Hayden Planetarium.

Brian Sullivan

2 11:00 a.m. N.Y. Map Society. Room 129. Free.

1:00-4:30 p.m. Cultures of the Middle East. Middle East Dances. Introduction to Islamic Art and Culture. Leonhardt People Center. Free.

9 1:00 p.m. Wayang Kulit. Traditional shadow play of Bali. Kaufmann Theater. Free. Page 3.

1:00-4:30 p.m. Cultures of the Middle East. Dances of Arabs, Christians, and Jews. Persian Ceramics. Morocco through slides. Leonhardt People Center. Free.

Members of the South Pacific Odyssey Cruise arrive in Papeete, Tahiti. Discovery Tours: (212) 873-1440.

16 1:00-4:30 p.m. Cultures of the Middle East. Dances of Arabs, Christians, and Jews. Islamic Book Making. Color me Kurdish. Leonhardt People Center. Free.

23 11:00 a.m. and 2:30 p.m. The Great Dinosaurs. Members' Family Program. Kaufmann Theater. SOLD OUT from February issue.

1:00-4:30 p.m. Cultures of the Middle East. Music of the Kavkaz (Caucasus). Islamic Miniatures (painting). Persian Ceramics. Leonhardt People Center. Free. Moon is at apogee

30 1:00-4:30 p.m. Cultures of the Middle East. Dances of Arabs, Christians, and Jews. Egypt through slides. Leonhardt People Center. Free.

Members of the Anthropology Tour to Morocco arrive in Tangier. For information on future Discovery Tours call (212) 873-1440.

8 8:00 p.m. N.Y. Microscopical Society. Room 419. Free.

Moon is at perigee



This sculpted hornbill with its foot in a snake's mouth represents an Asante proverb about the persistence of creditors.

29 8:00 p.m. N.Y. Microscopical Society. Room 419. Free.

First Quarter (half moon)

6 7:45 p.m. Amateur Astronomers Association. Kaufmann Theater. Free.

Full Moon

13 7:30 p.m. The World of Whales. Auditorium. Tickets required. \$6.00 for Members. \$7.00 for non-members. Page 2.

7:30 p.m. New York Mineral Club. People Center. Free.

Last Quarter (half moon)

21 7:30 p.m. Tantric Rituals. The Gyuto Monks perform sacred rituals. Hall of Ocean Life. Tickets required. Page 1.

New Moon

20 7:30 p.m. Tantric Rituals. The Gyuto Monks present a premiere performance of sacred rituals. Main Auditorium. Tickets required. Page 1.

Vernal Equinox (Spring begins at 11:14 a.m.)

27 7:30 p.m. Lapidary and Gem Society. People Center. Free.



This Asante sculpture, on exhibit in Asante Kingdom at Gold, is covered with sheet gold and mounted on top of a royal umbrella. The backward-facing sankofa birds represent a proverb reminding people not to fear their past mistakes.

19 7:00 p.m. Reeds, Horns, Drums and Gongs. Page 6.

8:00 p.m. Linnaean Society. People Center. Free.

8:00 p.m. N.Y. Entomological Society. Room 323. Free. Captured Motion: Skeletal Studies by S. Harmsted Chubb exhibit opens today in Gallery 1. Page 2.

26 7:00 p.m. Reeds, Horns, Drums and Gongs. Page 6.

8:00 p.m. Linnaean Society. People Center. Free.

3 11:00 a.m., 1:00 and 3:00 p.m. Fossils of 42nd Street. Members' Tour. SOLD OUT from February issue.

1:00-4:30 p.m. Cultures of the Middle East. See March 2. Leonhardt People Center. Free.

10 1:00-4:30 p.m. Cultures of the Middle East. Israeli Folk Dances, Morocco through slides. Leonhardt People Center. Free.

2:00 p.m. N.Y. Shell Club. Room 419. Free.

17 11:00 a.m. American Cetacean Society. Room 319. Free.

1:00-4:30 p.m. Cultures of the Middle East. See March 16.

2:00 and 4:00 p.m. Alborada Latina. Free. Page 6.

2:00 p.m. New York Paleontological Society. Room 426. Free.

2:00 p.m. N.Y. Turtle and Tortoise Society. Room 129. Free. St. Patrick's Day.

24 1:00-4:30 p.m. Cultures of the Middle East. See March 23. Leonhardt People Center. Free.

11:00 a.m. and 2:30 p.m. The Great Dinosaurs. See March 23. SOLD OUT from February issue.

31 1:00-4:30 p.m. Cultures of the Middle East. See March 30. Leonhardt People Center. Free.

Tem. Watch: lecture and film by Museum ornithologist Helen Hays. Sunday, March 31. Theodore Roosevelt Birthplace National Historic Site. Information and reservations: 212-260-1616.

POTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History

Vol. 10, No. 4 April 1985



Ancient Treasures of the Maya

Exhibition opens Friday, April 26
Special Members Viewing April 29, (filled)
Additional Viewing April 30.

At the end of the ninth century A.D., the Classic Maya civilization, one of the most brilliant cultures in the history of the world, suddenly and mysteriously collapsed. For hundreds of years, once-thriving cities and superb works of art lay buried in southern Mexico and Central America. However, during the nineteenth century archaeologists began to investigate and uncover these sites.

The results of some of these archaeological efforts will be on display in *Maya: Treasures of an Ancient Civilization*, a traveling exhibition opening at the Museum this month.

This important exhibition, created by the Albuquerque Museum, will examine the Maya's remarkable achievements in astronomy, calendrics, mathematics, hieroglyphics, art and architecture. Of the 275 art objects to be exhibited, some of the more out-

standing include a gold necklace composed of beads and jaguar heads, an example of the oldest known ceramics from the Maya region; and a polychrome vase on which a seated figure holding a young jaguar is depicted. Visitors can also view a model of a Preclassic temple which was uncovered at Uaxactun, Guatemala.

The development of 3,500 years of Maya culture, including daily life, religion, government, warfare and trade, will be traced chronologically from the beginning of the Preclassic period starting around 2,000 B.C. to the Spanish Conquest in the sixteenth century.

In conjunction with this exciting exhibition, two programs will be offered at the Museum.

Our Members' Viewing of the Exhibition will include a cash bar and musical entertainment by Jim

Berenholtz and Mazatl Galindo. These performers combine music with poetry and indigenous languages. The instruments they play are all indigenous to Mexico and Central America, and include conch and gourd trumpets and butterfly cocoon rattles. The viewing is open to Members only. Members can register for the viewing by using the Members' Coupon on page 5.

Berenholtz and Galindo will appear at the Museum once again on May 7, along with the dance ensemble Grupo Taoseño, in a May program devoted to the new hall. For more information about *Mayan Dance and Music*, which is free and open to both Members and non-members, please turn to page 8.

The exhibition is funded by grants from the NEA, the Albuquerque Museum Foundation, the City of Albuquerque, and the New Mexico Economic Development and Tourism Department.

Audubon

Celebrate the opening of the new exhibition *John James Audubon: Science into Art* by joining a special Members' Highlights Tour or listening to the music of Birds, Bees, and Bugs.

Page 3

It's an Animal's World

Which animal's diet includes wasps and bees? What bird can fly more than 150 miles per hour? Learn the answers to these questions, and a great deal more about the animal kingdom with Bill Robinson in *The World of Animals*.

Page 5

Science Frontiers

Join Dr. Gerald Edelman for a series of exciting lectures in which the sciences of embryology, neurobiology, and immunology join together to teach us more about being human.

Page 4

Max's Flying Saucer

Kids will enjoy taking a tour of the Milky Way and traveling to the edge of our galaxy with Max and his alien friend Phui.

Page 9

Harlem Sounds

Although the Depression years were a time of hardship in Harlem as everywhere, black culture continued to flourish and black music soon gave rise to the big band era.

Page 2

African American Lecture Series

Wednesday, April 17 and Wednesday, April 24
7:00 p.m.
Kaufmann Theater
Free



Count Basie

Harlem, along with the rest of the United States, endured bread lines and riots during the Depression years. Despite hard times, black culture flourished in Harlem during these years, and an attitude of hope prevailed. The thirties and forties ushered in the big band era.

Museum visitors will follow the history and sounds of Harlem music through these decades in the following lectures presented by the African-American Program of the Museum's Department of Education.

April 17. Harlem Swings. Peggy Dickson has lived and worked in Harlem all her life and has lectured throughout the New York City area. She is an avid collector of original jazz recordings. In *Harlem Swings*, Ms. Dickson discusses and plays recordings of big band music including Chick Webb, Jimmie Lunceford, and Earl Hines. The program includes pictures of Harlem street scenes, entertainers, and theaters.

April 24. The Basie Years. The music and career of Count Basie, the King of

Swing, are the subject of this program. Ernest Smith, lecturer and archival film collector, will use slides and film to highlight the long career of Count Basie. He will show film clips of the Basie band in 1937 with Jimmy Rushing, clips from a 1950's New Years Eve celebration, and additional film footage.

This program has been made possible in part by a gift from the Henry Nias Foundation. Seating is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 514.

Volunteer Your Time and Learn the Art of Origami

Six special origami sessions for volunteers
begin Wednesday, May 1

Museum visitors can learn how to create various natural history subjects including pandas, strawberries, stars, birds, and fish — out of paper.

This special *Introduction to Origami* course is free to anyone willing to volunteer an equal amount of time to Museum origami projects, like showing Museum visitors this delightful art, or working on

our next spectacular Holiday Origami Tree.

Beginners, fear not. This class is geared to the uninitiated. All you need are your fingers and a desire to learn a unique art form. All materials are supplied.

Introduction to Origami will meet on six consecutive Wednesday evenings from 6:30 to 8:00 p.m. It is taught

by Museum volunteer origami specialists Alice Gray and Michael Shall.

For information and registration, please call the Volunteer Office at (212) 873-1300, ext. 538, between nine and five p.m. The Museum takes great pride in our many energetic and talented volunteers, and invites you to become one of them.

Film and Margaret Mead

Wednesday, May 15
7:00 p.m.
Main Auditorium
Free

Margaret Mead advocated the use of film and photography in anthropological field-work. She understood that these tools could help record rapidly-changing cultures — preserving moments which then could be analyzed and restudied repeatedly. Film contributes to a more profound understanding of a culture for the anthropologist, while sharing that understanding with a wider audience.

Dr. Paul Byers, anthropologist and professor at Columbia University's Teacher's College, first met Dr. Mead while working as a journalist and photographer in Australia. Inspired by her interest in film as an anthropological tool, he later studied with her. He has ded-

icated much of his own work to developing methodologies for using film to study communication behavior.

In *Margaret Mead and Film*, Dr. Byers will discuss Margaret Mead's use of film, and show several short classic films with which she was directly involved. He will also share with the audience unedited footage and classroom materials that Dr. Mead herself once used.

This program is presented by the Museum's Department of Education. Seating is on a first-come, first-served basis, so Members are advised to arrive early to avoid disappointment. For additional information, please call (212) 873-1300, ext. 559.

ROTUNDA

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Birds, Bees and Bugs

Saturday, April 27
2:00 p.m.
Kaufmann Theater
Free

The natural world, which John James Audubon celebrated in art, will be celebrated at the Museum in song this month in a concert entitled *Choral Music of Birds, Bees and Bugs*.

The hum of a bee, the chirping of crickets, and the song of the nightingale are some of nature's sounds that composers have used in their music throughout the centuries. A selection of these compositions will be presented by the a capella chorus *I Cantori di New York* in a concert celebrating the winged creatures of the world.

Included are compositions such as Josquin Des Prés's *El Grillo* (The Cricket),

Jannequin's *Chant des Oiseaux* (Song of the Birds), and Mendelssohn's *Die Nachtigall* (The Nightingale). Other composers whose works will be performed are Brahms, Ravel, Stravinsky and Vaughan Williams.

I Cantori di New York features sixteen singers under the direction of Bart Folse. The group made its debut at New York's Symphony Space in 1984.

Choral Music of Birds, Bees, and Bugs is presented by the Museum's Department of Education. Seating is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 566.

John James Audubon: Science into Art

Exhibition opens April 18
in the Naturemax Gallery



This oil painting of Audubon was completed by his son John Woodhouse around 1843.

Jean Jacques Fougere Audubon was born April 26, 1785 in Les Cayes, Santo Domingo, or present-day Haiti. The illegitimate son of a French sea captain who had fought in the American Revolutionary War, Audubon spent his childhood in France, where he began to draw birds as a hobby.

At 18, Audubon emigrated to the United States, probably to avoid being conscripted into Napoleon's army. Although he drew birds and other animals for many years, it was not until the age of 40 that Audubon conceived of and began work on his famous book *Birds of America*. With Audubon's

prints and paintings, animals were finally perceived as living, breathing creatures with life histories of their own, instead of the isolated, one-dimensional images usually portrayed prior to 1827.

As a tribute to this artist's life and work, the exhibition *John James Audubon: Science into Art* opens this month at the Museum.

Two new hand-colored prints from *Birds of America*, pressed from their original, restored copperplates, highlight the exhibition. These two prints, "Wild Turkey, Male" and "Snowy Owl," are the first issue from these particular plates since 1838, when the original edition of *Birds of*

America was published. Several other *Birds of America* prints issued between 1827 and 1838 will be included in the exhibition, and visitors will view a video loop that shows how prints are restored.

Other highlights of the exhibition include an original *Birds of America* copperplate, Audubon's palette, photos of the Audubon family, and artifacts from Audubon's last expedition on the Missouri River, in 1843.

In conjunction with this exhibition, the Membership Department offers a special tour, and the Department of Education presents a musical concert. Both programs are described on this page.

Members' Tour of the Month Birds of North America

Members are invited to celebrate the opening of *John James Audubon: Science Into Art* by taking a free Members' Tour through this new exhibition, highlighted on this page.

In addition, this tour will include a walk through the Hall of North American Birds. The original Hall of North American Birds was the first hall in any Museum in the world to show animals in three-dimensional habitat groups. Each environment depicted represents a real place in the world.

Members will learn how the various species of birds depicted in both exhibitions

adapt to desert, mountain, marsh, and forest environments. Endangered species such as the condor and the whooping crane, and conservation efforts to preserve them will be discussed.

Volunteer Museum Highlights Tours guides will point out how various artists have portrayed birds in their art. Members can compare the works of Audubon to those of other wildlife artists who are represented in the Hall of North American Birds, such as Fuertes and Rungius.

To register, please use the coupon below.

Members' Tour: Birds of North America. Please indicate a first, second and third choice of tours.

Saturday, May 4	10:45 a.m.	11:15 a.m.
Saturday, May 11	10:45 a.m.	11:15 a.m.
Wednesday, May 15	6:00 p.m.	6:30 p.m.
Saturday, May 18	10:45 a.m.	11:15 a.m.
Sunday, May 19	10:45 a.m.	11:15 a.m.
Wednesday, May 22	6:00 p.m.	6:30 p.m.

Number of people: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: Birds, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY, 10024. Registration closes April 20.

Participating, Donor
and Contributing Members are invited to a

Behind-the-Scenes Tour of the Department of Anthropology

Sunday, May 5, or Wednesday evening, May 8
\$7.00 and open only to Members
and their guests

In our Spring Behind-the-Scenes Tour of the Department of Anthropology, Members will meet five Museum anthropologists and learn about their work.

Enid Schildkrout will introduce Members to an old storage area where African artifacts await study or display. She will discuss the unique opportunities of working for a Museum, as well as her field work in Northern Nigeria, where she studies the economic roles of Hausa women and children.

Vuka Roussokis, textile conservator, will discuss how a knowledge of conservation techniques and art history help her and her co-workers nurse beautiful textiles back to health. On display will be artifacts from our Andean archaeological collection, including garments and burial items.

Jon Tattersall is a physical anthropologist who was co-curator of the *Ancestors* exhibition. If you have any questions about either *Ancestors* or hominid evolution, this

is the time to ask. On Tattersall's lab tables, Members will find copies of several fossils from *Ancestors*. A human skeleton will greet you at the door.

Barbara Conklin, registrar, is the woman who manages the Museum's extensive anthropology collections. She will introduce Members to our new storage system, and discuss the importance of our collections both in research and exhibition.

Craig Morris, chairman of the Anthropology Department, is an archaeologist whose major area of study is Peru. By introducing Members to the just-begun South American Hall, he will illustrate how archaeologists, anthropologists and artists work together to create a new exhibition. The South American Hall will not open before 1987.

Following the tour, Members can enjoy coffee, tea, and cider in the Audubon Gallery. To register for the tour, please use the coupon below.

Behind-the-Scenes Tour. (Open only to Participating, Donor and Contributing Members.) Tours will leave at fifteen-minute intervals beginning at 10:30 a.m. Sunday, May 5, and 5:15 p.m. on Wednesday, May 8. We will send you a confirmation card by mail which will indicate the exact time your tour will start. Please indicate a first, second, and third choice of times. **Limit of four tickets.**

- ____ Sunday, May 5 between 10:30 a.m. and noon.
____ Sunday, May 5 between 1:00 p.m. and 2:30 p.m.
____ Wednesday, May 8 between 5:15 and 6:00 p.m.
____ Wednesday, May 8 between 6:15 and 7:30 p.m.

Number of tickets at \$7.00 each (limit of 4): _____
Amount enclosed: _____ \$

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: *Behind-the-Scenes Tour*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

The Sciences of Recognition

April 8, 10, 12, 15 and 17
7:00 p.m.

Main Auditorium

Series tickets: \$10 for Members, \$20 for non-members

Travel to the frontiers of scientific knowledge in our ninth annual *Mock Lipkin Man* and *Nature Lecture Series* with Dr. Gerald M. Edelman.

How does an embryo grow from a fertilized egg to a functioning adult? How does the human immune system recognize foreign molecules? How do human beings learn? What is the role of evolution in the development of "awareness"? These are just a few of the

topics to be discussed in *The Sciences of Recognition*, a five-lecture series by Dr. Edelman, who is Vincent Astor Distinguished Professor at Rockefeller University. In 1972 he won the Nobel Prize in Medicine or Physiology for describing the structure of the antibody molecule, a protein of great importance in immunological responses. His current work spans across the fascinating and varied disci-

plines of embryology, neurobiology and immunology, all of which will be woven together in this month's lectures.

To register, please use the **Members' Programs Coupon on page 5**. If available, tickets for individual lectures may be purchased at the door on the evening of the program. These are \$4.00 for Members and \$5.00 for non-members.

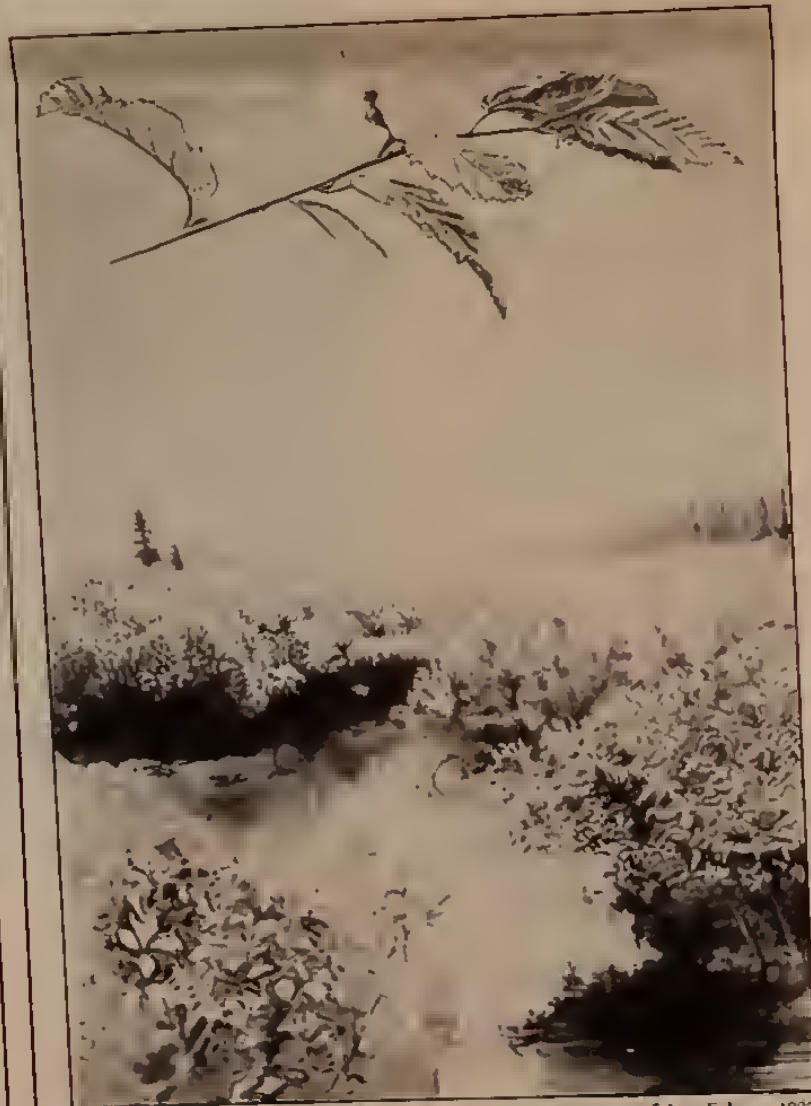
Adirondack Celebration

Tuesday, May 14

6:30-7:30 p.m. — Special Displays

7:30 p.m. — Slide Program

Free for Members, \$3.00 for non-members



© Anne E. Lacey, 1982

May 15, 1885 was an important date for one of the United States' most beautiful areas — the Adirondacks. On this date, the Adirondacks became a forest preserve.

Today, the Adirondack Park contains more wild country than any other area east of the Mississippi River. Its 6,000,000 acres contain 2,800 lakes and ponds, more than 30,000 miles of rivers

and brooks and — of course — the mountains for which the Park is famous. Black bear, white-tailed deer and spruce grouse are among the wildlife found in this region.

Members are invited to a special celebration of the 100th anniversary of the Park's founding, as the Museum and the Adirondack Council join forces to present *Celebrate the Adirondacks*, a

potpourri of wildlife exhibitions and environmental presentations.

Between 6:30 and 7:30 p.m., in the Hall of Northwest Coast Indians, Museum scientists and experts will speak with Members about the mammals, insects, fish, reptiles, amphibians, and birds of the Adirondacks, displaying specimens of various Adirondack species from the Museum's collections. Geology, the effects of acid rain, and the future of the park will be discussed and Members will view original artwork of Adirondack plant life, animal life and geological features.

The main feature of *Celebrate the Adirondacks*, beginning at 7:30 p.m. in the Main Auditorium, is a slide show presentation entitled *Celebration of Wildness*. As beautiful photographs and striking illustrations of the Adirondacks flash on the screen, the unique wildlife, the history, and the political battles of the Adirondacks region will be personally narrated by Peter Berle, former New York State Assemblyman and former Commissioner of the Department of Environmental Conservation.

To celebrate the **Adirondacks**, please use the **April Members' Coupon on page 5**.

April Members' Programs Coupon

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total amount enclosed: \$ _____

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: April Members' Programs. Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Man and Nature: The Sciences of Recognition. April 8, 10, 12, 15, and 17. Participating, Donor and Elected Members are entitled to six series tickets at the Members' price of \$10.00. Associates are entitled to two. All other tickets are \$20.00. Only series tickets may be ordered in advance. Tickets for individual lectures may be purchased at the door on the day of the program. Individual ticket prices will be \$4.00 for Members and \$5.00 for non-members.

Number of series tickets at \$10 each: _____

Number of series tickets at \$20 each: _____

Amount enclosed for program: \$ _____

The World of Animals. Sunday, April 14. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00. Please indicate your first and second time preference.

_____ 11:00 a.m. _____ 1:00 p.m.

_____ 2:30 p.m. _____ 4:00 p.m.

Number of free tickets: _____

Number of tickets at \$3.00 each: _____

Amount enclosed for program: \$ _____

Members' Opening for Maya: Treasures of an Ancient Civilization. Tuesday, April 30. Free and open only to Participating, Donor and Contributing Members. Please indicate your first and second time preference.

_____ 6:00 p.m. _____ 7:00 p.m. _____ 8:00 p.m.

Number of tickets requested: _____

Max's Flying Saucer. Saturday, May 11. \$2.00, and open only to members. Please indicate your preference.

Number of free tickets at \$2.00 each: _____

_____ 10:00 a.m. _____ noon

Number of tickets requested: _____

Amount enclosed for program: \$ _____

Adirondack Celebration. Tuesday, May 14. Free for Members, \$3.00 for non-members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00 each.

Number of free tickets: _____

Number of tickets at \$3.00 each: _____

Amount enclosed for program: \$ _____

Sounds, Symbols, and Styles. Tuesday, May 21. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price of \$3.00. Associates are entitled to one. All other tickets are \$6.00.

Number of tickets at \$3.00 each: _____

Number of tickets at \$6.00 each: _____

Amount enclosed for program: \$ _____

The World of Animals

Sunday, April 14
11:00 a.m., 1:00, 2:30 and 4:00 p.m.
Kaufmann Theater
Free and open only to Members

Meet some fascinating animals and learn about their ways with Bill Robinson in *The World of Animals*, a program for Members of all ages.

Mr. Robinson will discuss little-known habits and characteristics of many different animals, including the bushbaby, the Ethiopian ground hornbill, and the binturong.

Did you know that the spiny hedgehog's diet includes wasps or bees? Or that the peregrine falcon can fly at speeds greater than 150 miles per hour? Mr. Robinson will discuss environmental threats that now face these and many other wild animals.

The World of Animals marks Mr. Robinson's fifth appearance at the Museum. A popular wildlife lecturer, Mr. Robinson is involved in reintroducing injured and orphaned birds of prey back into their natural environments.

To register for *The World of Animals*, please fill out the adjacent April Members' Programs Coupon.



A female peregrine falcon, on the wing.

Sounds, Symbols and Styles

Tuesday, May 21 7:30 p.m. Main Auditorium
\$3.00 for Members, \$6.00 for non-members



Moriquito and Daniel perform Bolles Españoles.

Dances from Spain, the Middle East and India will be featured when Matteo and his EthnoAmerican Dance Theater present *Dance: Sounds, Symbols and Styles*. A Middle Eastern duet in which the movements are determined by

the sounds of the zils (finger cymbals), classical dances of North and South India using ghunguru (ankle bells), and Andalusian folk dances accompanied by castanets, fingersnapping, and heel work will all be used to illustrate the

interplay between dance and indigenous music. Matteo will also explain the symbolic significance of the gestures used in these and other dance forms.

Matteo is renowned for his juxtaposition of Eastern and Western styles. One of the program's highlights will be his performance of "Lord of the Dance," which combines the traditional Hasta Mudras (symbolic hand gestures of India) with the rhythms of a traditional shaker hymn. In another blending of two cultures, Matteo will be joined by Carola Goya to present a castanet duet to the music of Scott Joplin, and a castanet quartet with two additional guest artists.

Matteo has performed throughout the world. The New York Times has described him as "the most versatile artist in the field of ethnic dance." He has been a pioneer in presenting ethnic and cross-cultural dance programs to American audiences.

Matteo's enthusiasm, knowledge and artistry have made him one of the Museum's most popular performers. In this performance, he will be joined by a number of distinguished guest artists.

To register for the program, please use the adjacent April Members' Programs Coupon.

The Hairy Arachnids

Mr. Louis Sorkin, Scientific Assistant in the Department of Entomology, is in his office trying to sort out some newly-acquired arachnids collected from Chile and Australia, when the phone rings for the fifth time in an hour. Obviously, he is destined not to complete the task today. The phone continues to summon him, and he picks up.

"Hello, Mr. Sorkin speaking."

"My tarantula is lying upside down in her cage. What's wrong with her. Is she dying?"

On another day, the question was "My tarantula is very old and has been acting odd lately. This morning when I fed him some crickets he seemed very disoriented. Is there anything I can do for him?"

While these questions might not seem of paramount significance to everyone, they are quite important to the worried tarantula owners who have been referred to Mr. Sorkin by the switchboard operators.

To the first question, Mr. Sorkin answers that while it's possible the tarantula's hours are numbered, it's more likely that she is in quite good health and is merely molting (shedding her skin). Like all spiders, tarantulas must molt in order to grow. They first do so after leaving the egg, and then many more times before reaching maturity. Depending on the species, maturity is attained at 7-10 years of age. After maturity, the females of certain species may continue to molt once a year for as much as 25 years.

During the time preceding molting, a wounded tarantula may heal. If the animal has lost a leg, for instance, a new one may appear with the new skin.

Mr. Sorkin may suggest that the owner look closely at the "window" — a bald spot atop the tarantula's abdomen — to see if the animal's new skin is peeking through. This bald spot forms when the spider has kicked off its urticating hairs — hairs which help it escape from its vertebrate predators by imbedding in their skin or eyes, causing irritation or blindness.

The disoriented tarantula's problem may be dehydration. If this is the case, the tarantula merely needs water, and the pet's owner can provide this by dipping the tarantula's front end into a dish of water.

However, it may also be a problem of senility — a common problem among aged tarantulas. Instead of pouncing upon its prey a senile tarantula walks drunkenly toward it. In this case, nature must take its course.

Mr. Sorkin has always been interested in animals, particularly in insects, but it wasn't until he was a student at the University of Connecticut at Storrs that he began to specialize in spiders and other arachnids, "chiefly because no one else was working on them."

The creatures that form the basis of his studies have inspired both fear and fascination in people wherever people and tarantulas have coexisted. People, especially in the United States, tend to call any large, hairy spider a tarantula, and many misnomers have been created in this way. For example, the first animal to be associated with the word "tarantula" was not what people popularly call the pet store variety today, but was actually a wolf spider (Family name: Lycosidae, genus *Lycosa*).

During the Dark Ages, in Taranto, Italy, a legend arose that the wolf spider's bite was fatal unless the victim danced until the poison was sweated out of his system. The dance became known as the tarantella. The animal whose bite led to such precautions may have not been either a wolf spider or a tarantula — but a widow spider (Family name: Theridiidae, genus *Latrodectus*).

Another possibility is that the word tarantula might have been derived from the word "terrantala," meaning "something creeping on the ground."

The large, hairy spiders popularly named tarantulas and kept as pets are mygalomorph spiders that belong to the family Theraphosidae, class Arachnida, the same class as the other spiders, scorpions, and mites. While often confused with the class Insecta, arachnids are quite different. They have only two body regions; the cephalothorax and the abdomen (as compared to insects, which have three — the head, thorax, and abdomen), eight legs (insects have six), and no antennae or wings (insects



Using additional silk, a Mexican red-kneed tarantula covers the eggs she has deposited on top of a silk platform.



Fourteen parasitic fly larvae invaded the body of this unfortunate Brazilian specimen.

always have antennae and most adult forms have wings).

Mr. Sorkin explains that one way to identify a mygalomorph spider is by its jaw (chelicerae) articulation. The chelicerae are attached at the front of the cephalothorax (the section containing the animal's "head" and legs). They are composed of two parts — the paturon, a heavy basal section which contains the venom gland, and the fang, which is hinged at the paturon's tip. Venom squeezed from the gland travels through a duct and eventually into a hollow canal in the fang. It exits through a hole near the fang's tip.

While the jaws of other types of spiders (e.g. araneomorphs) hinge open sideways, a mygalomorph's jaws are hinged vertically. This arrangement accounts for the way tarantulas raise

their front ends in order to pounce on their prey — a stance that contributes to their menacing reputation.

Most, but not all tarantulas have hairy legs and bodies. Another characteristic of these animals is the two pairs of book lungs on the underside of the abdomen. These "lungs" receive their name from the tissue of which they are made, which is layered a little bit like the pages of a book. Air is directed to body tissue via a piping network called the tracheal system.

Nearly all spiders have eight eyes. The tarantulas are no exception. A tarantula's eyes are grouped closely together on the front top part of its cephalothorax. Even with eight eyes, a tarantula's vision is poor. Much of its sensing is done via vibrational and chemical cues.

Celestial Rhythms

Wednesday, May 1 and Thursday, May 2
7:30 p.m.
Sky Theater
See coupon for prices



climbing the walls of the burrow to hang upside down while pupating. Since they have no legs, and can only climb a surface that is easy to cling to by using their mouth hooks and sticky body surface, the silk is of great service to them.

Tarantulas are hunters that tend to sit in wait for prey rather than go on far-ranging journeys to obtain their meals. Mr. Sorkin has suggested that the main reason people like to keep them as pets is to watch them eat! After pouncing on its prey (which consists mainly of insects and sometimes small vertebrates), the tarantula bites into it, injecting venom with its fangs, and paralyzing it. The tarantula then floods its prey with digestive juices, for all spiders begin the digestive process outside their bodies.

As the digestive juices do their work, the tarantula begins to masticate the partially digested prey, sucking the slurry in through its mouth and repeating this procedure again and again. Undigestible material such as exoskeleton or bone is discarded. Once the tarantula has completed its meal — a process that may take up to 24 hours — it may not eat again for days or even weeks.

Tarantulas are among the largest of the world's spiders. One species may reach 3.5 inches in length (not counting its 10-inch legspan) and weigh almost

of a pound! In the Amazon Basin, where the largest tarantulas live, observers have seen them eat hummingbirds and finches. American mygalomorphs have been credited with eating small vertebrates, including lizards and

tarantulas have relatively longer legs and bodies than females. The males of most species soon after they reach maturity at six or seven years, while some tropical species may reach at the age of two or three. Females, however, have been known to live up to twenty-five years in captivity.

While the male tarantula begins the mating process, he reaches maturity, and even before he finds a mate. Following the molt leading up to maturity, he emerges with specialized pedipalps, segmented appendages on each side of the chelicerae, the first pair of walking legs. These are specialized copulatory structures and reservoirs at their tips. Their use will soon be

Mr. Sorkin describes tarantula courtship as follows: The male fastidiously builds a platform of silk, on the ground. He lies upside-down beneath it. Once this silken platform is complete, he deposits his sperm into this web from a genital opening on the underpart of his abdomen, near the first pair of legs. Climbing up to the platform, he deposits his sperm into the reservoirs at the tip of his legs. This part of the process is called sperm

deposition. Then, the male tarantula destroys the web, and goes off in search of a mate. He approaches a female by tapping with his palps and legs as he explores the entranceway to her burrow, finally entering the burrow entrance. If the female is interested in this suitor, she answers by tapping. If he approaches him.

The courtship ritual becomes a tapdance routine like none ever seen on a Hollywood stage, as the two tarantulas come closer and closer together, tapping all the time in alternating rhythms. When their bodies finally meet near the entranceway to her burrow, he continues tapping on her.

Most male tarantulas have specially-modified front legs, which are equipped with one to three prongs. As the male and female tarantula come together frontwards, the female begins to rise up on her back legs, opening her chelicerae and extending the fangs. The male uses the prongs on his front legs to grasp her open fangs, helping to keep her body tilted up while he drums his palps against her sternum — a plate-like structure on the underpart of her cephalothorax. With alternating palps, he deposits his sperm into each side of her genital aperture, the right palp doing its work on the right aperture, and so forth.

Following copulation, the two tarantulas "come down from their high." The male runs away, and the female returns to her burrow. Both may mate again with other "suitors."

The female tarantula produces a silken platform upon which the eggs are deposited. Over this, she weaves a layer of silk. Next, she grabs this double-sided platform and rolls it into a silken bag which

holds the eggs within it. 100 or more eggs may be deposited at one time. She keeps them with her in the burrow until the eggs hatch in a month or two. Occasionally she may sun the eggs in the burrow's entranceway.

The baby spiders remain with their mother for several weeks after birth. The high number of eggs produced does not reflect the actual number of spiders that mature. Only one to five spiders of this group may reach adulthood.

In spite of their ferocious appearance, tarantulas have few defenses against their enemies, which include mice, birds, and insect parasites and predators. A tarantula can kick, bite with its fangs, and rear up in a menacing manner. Some tarantulas create humming or rasping sounds by rubbing opposing appendages together. Often, when faced with danger they simply run away.

Another defense, which works specifically against vertebrate predators, is the release of the urticating hairs from a tarantula's abdomen. These hairs operate somewhat like a porcupine's quills. The tarantula can release them by kicking them off with its hind legs. They become imbedded in the enemy's skin, where they can cause an irritation, or even blindness if they enter the eye.

During the past eight years of specialization, Mr. Sorkin has become increasingly sensitive to the animals' urticating hairs, probably due to his frequent exposure to them. But that doesn't seem to diminish his enthusiasm for the animals — he keeps three tarantulas as pets in the Museum.

Although the bite of a tarantula may be momentarily painful, most tarantulas of the Southwestern United States and Mexico have done nothing to deserve their reputation at being deadly to human beings. The tarantula's bite is deadly only to the creatures it plans to eat. People who are allergic to tarantula venom may become seriously ill or even die from a bite. The same can occur from the sting of a bee, wasp or ant, yet these animals do not seem to inspire the same trepidation as do tarantulas.

Tarantulas constitute only a small percentage of the approximately 35,000 species of spiders — many of which are represented in the Entomology Department's spider collection — the largest in the world.

One of the Museum's prize specimens is a tarantula found in Venezuela during the 1984 expedition to Neblina, or "Mountain of the Mist." She had a ten-inch legspan, a record size. For a short time she lived in the office of the Deputy Director of Research, where Museum staff members tried feeding her everything from crickets to frogs (the latter were eaten with relish). Nevertheless, she died a few weeks after her capture for reasons unknown.

Mr. Sorkin's Museum time is nowadays spent sorting out new arachnid material collected from different parts of the world. An ongoing project is the sorting of North American spider families into their respective genera. He has also assisted in forensic investigation for the police department, supplying information on insects present on the bodies of victims of crime. And then, there are always the phone calls.

— Lynn Warshaw

Chubb: His Science, His Art

Wednesday, April 10
7:00 p.m.
Kaufmann Theater
Free

Samuel Harmsted Chubb, artist and scientist at the Museum in the early 1900s, combined a considerable knowledge of anatomy and osteology, and a formidable artistic talent to construct a unique series of skeletal mounts of animals in motion. Many of these mounts, including skeletons of horses, a wolf and a human, can now be seen in Gallery 1 in the new exhibition *Captured Motion: Skeletal Studies of H. Harmsted Chubb*.

In conjunction with this exhibition, Marie A. Lawrence, Senior Scientific Assistant in the Department of

Mammalogy, will present a slide-illustrated program on the scientific and artistic characteristics of Chubb's elegant work. She will discuss how and why the study of comparative structure has become a more precise science since the sixteenth century, when Leonardo da Vinci made the first known studies comparing the human skeleton to those of other animals.

Seating for this program, which is sponsored by the Museum's Department of Education, is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 559.

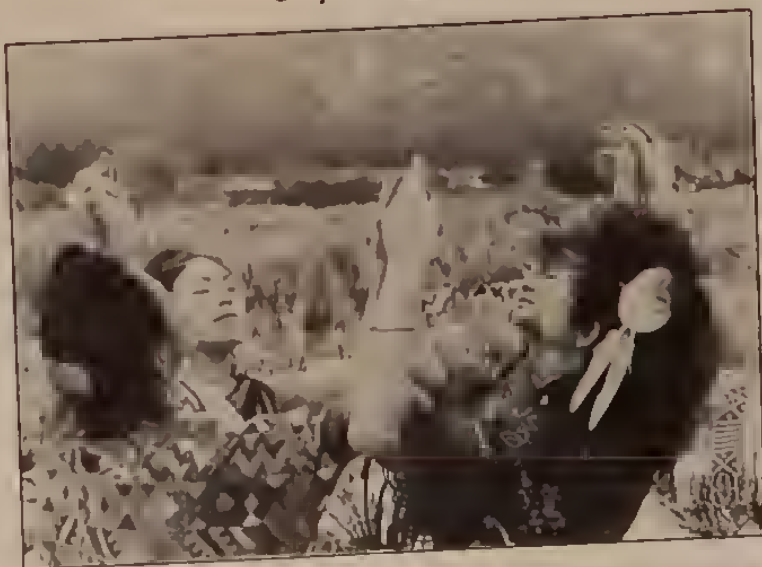
S. Harmsted Chubb prepares a wolf skeleton for the Museum's collections.



Mayan Music and Dance

Tuesday, May 7
7:30 p.m.
Main Auditorium
Free

Grupa Taoseña



Evolution of the Human Brain

Tuesday, April 16
6:00 p.m.
Kaufmann Theater
Free



Jim Berenholtz and Mazatl Galindo

Experience a music and dance extravaganza when Xochimoki and Grupo Taoseño perform music and dances of Mesoamerica to celebrate the recent opening of the exhibition *Maya: Treasures of an Ancient Civilization*. This program combines traditional and contemporary art forms, emphasizing the spiritual and ceremonial aspects of Mayan culture.

Xochimoki (Flower of the Ancient Ones) will perform with a unique array of native instruments from Mexico and Central America. A few of the instruments to be included in the program are gourd trump-

ets, turtle shell and bamboo drums, butterfly cocoon rattles, and clay flutes in the form of animals and mythical figures. Poetry and indigenous languages have also been incorporated into the performance by Xochimoki's two founders, Jim Berenholtz and Mazatl Galindo.

Grupo Taoseño is composed of five women who have danced together for two and a half years. Combining traditional and modern dance steps, they will perform what they call "Danza Indígena." Their selections include dances from Mexico and South America.

Mayan music and dances have traditionally been performed on ceremonial occasions to heighten spiritual states and reawaken the memories of ancient and mystical worlds. Xochimoki and Grupo Taoseño follow this tradition to reveal the richness and beauty of a nearly-forgotten culture.

This performance is sponsored by the Caribbean/Latin American Program of the Museum's Department of Education. Seating is on a first-come, first-served basis. For further information, please call (212) 873-1300, ext. 514.

Humans and apes have both evolved from a common ancestral stock, as ample evidence from the fields of comparative anatomy, cytogenetics, molecular biology and ethology confirms. Why then have twenty years' worth of intensive excavation in Ethiopia, Kenya and Tanzania — areas where early hominids are part of the fossil record — failed to produce any ape fossils dating from the past ten million years?

In the Museum's fifty-fifth James Arthur Lecture, Professor Yves Coppens proposes a possible solution to this paleontological mystery, one in which the earth itself has taken part in human evolution, affecting the structures of the human body and the complexity of the human brain.

According to Professor Coppens' model, an uplift of the earth's surface during the late Miocene created a division between the eastern and western parts of equatorial Africa. Areas to the east of this rift system became dry, while those to the west remained moist. Under these conditions, a common ancestral stock evolved into two lineages: the western apes,

adapted to forest and wooded savanna; and the eastern hominids, adapted to increasingly open grassland.

This model, which Professor Coppens will elucidate, may solve the mystery mentioned above. It may also explain much about human brain structure and culture. Professor Coppens will propose how a drier, more open environment may have led to upright posture, omnivorously-adapted dentition, and the increasingly complex hominid brain which made the development of culture and the emergence of language possible.

Fascinated by the past since childhood, Yves Coppens is currently a Professor of Paleoanthropology and Prehistory at the Collège de France, Director of the Center of Anthropological Studies at the Musée de l'Homme, and a Correspondent of the French Academy of Sciences. The recipient of several international prizes and medals, he was most recently awarded Unesco's 1984 Kalinga Prize for the Popularization of Science.

There are no tickets for this lecture, and seating is on a first-come, first-served basis.

Celestial Rhythms

Wednesday, May 1 and Thursday, May 2
7:30 p.m.
Sky Theater
See coupon for prices



Brian Sullivan

Bach By Starlight, the Planetarium's first live concert beneath the stars at the Hayden Planetarium, was such a success that the Planetarium vowed to create another program of celestial music. *Celestial Rhythms* was born.

While visitors to the Sky Theater enjoy the Planetarium's spectacular starry sky, its huge array of outer space vistas and its powerful four-color laser system, live contemporary and classical electronic

music will fill the room. Musical selections will include pieces from "Star Wars" and "The Right Stuff", Pachelbel's "Kanon in D", and original contemporary works of music.

The performers — Jonn Semie, Mark Petersen, and Barry Hayes — are talented, young musician-composers who have created scores and soundtracks for planetariums across North America.

To experience *Celestial Rhythms*, please fill out the adjacent coupon.

Celestial Rhythms. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$5. Associates and non-members' ticket price is \$8. Please indicate a first and second choice if possible.

_____ Wednesday, May 1, 7:30 p.m.
_____ Thursday, May 2, 7:30 p.m.

Number of tickets at \$8.00 each: _____
Number of tickets at \$5.00 each: _____ \$ _____
Total payment enclosed: _____

Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Daytime Phone: _____
Membership category: _____

Please make check payable to the American Museum-Hayden Planetarium and mail with a self-addressed, stamped envelope to: *Celestial Rhythms*, Hayden Planetarium, Central Park West at 81st Street, New York, NY 10024. All ticket orders must be received ten days prior to show date.

Happenings at the Hayden

Sky Shows

The Violent Universe. Narrated by Vincent Price. Through June 24. Black holes, exploding galaxies and the birth of the cosmos itself. In this exciting program, an unprecedented array of special effects will take you on a tour of our dynamic and fascinating universe.

Sky Show admission for Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and Sky Show times, please call (212) 873-8828.

Wonderful Sky

Through dialogue, song and audience participation children explore rainbows, sunsets,

and distant, sparkling stars in this special Sky Show for children from three to six years of age. This popular show features images of children's favorite Sesame Street Muppets, including Big Bird, Oscar, and Cookie Monster. For *Wonderful Sky* information, please call (212) 873-5714.

© 1985, Children's Television Workshop; Muppets, Inc.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings.

Through April 27: World premiere opening of *Heavy Laser*, a show featuring The

Police, Van Halen, The Who, and Rush at 7:30, 9:00 and 10:30 p.m.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

The Planetarium offers many programs for young children. For school information call (212) 873-5714. For general information call (212) 873-8828.

It is always a good idea to call before coming, since prices and show times are subject to change without notice.

Max's Flying Saucer

Saturday, May 11
10:00 a.m. and 12:00 noon
Sky Theater
\$2.00 and open only to Participating, Donor and Contributing Members.

WANTED: Kids, ages six to ten, with imagination and curiosity — and their parents.

FOR: A mission to outer space.

Young Members who meet the qualifications above are invited to strap themselves in under the Sky Dome and prepare to join a boy named Max and his alien friend Phui on an exciting flight through the Milky Way.

First, you'll pass by the planets of our own solar sys-

tem. Then, you'll soar out into deep space where Phui, your captain, will explain which kinds of stars are most likely to have planets where there could be intelligent life, and why.

After a sort stop on Phui's home planet Blatzferndle, your ship will take you to the edge of our galaxy, the Milky Way, for a spectacular view of more than 100 billion stars. By the time you come back down to earth, you'll have

learned the difference between red dwarf, giant blue, and solar stars, and a lot about the planets in our solar system too.

And that's not all — after the show, kids will have the opportunity to create a starscape and make their own flying saucer.

All aboard for *Max's Flying Saucer*. To register, please fill out the April Members' Programs Coupon on page 5.

Introducing our New Members' New York Weekend

Members and Members' guests who live out-of-town are cordially invited to spend two nights in one of New York's finest hotels, enjoy two excellent complimentary meals at elegant restaurants, receive free Planetarium and Naturemax tickets, and much more in our new tour program designed to make visits to New York City both comfortable and exciting — and

all for \$92.50 per person, per night (based on two nights double occupancy).

Our travel service representatives will help customize a fun-filled weekend in New York City. They can help arrange for theater or concert tickets, restaurant reservations, a carriage ride through Central Park, or a special city tour. They can also arrange for discount air fares to New

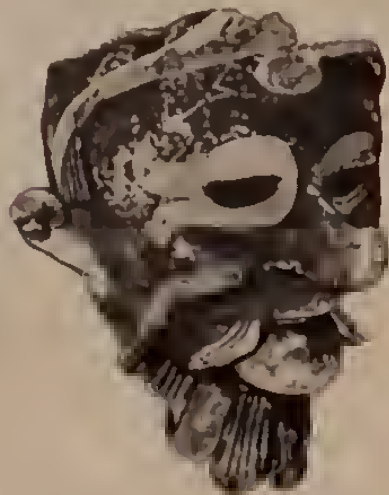
York on American Airlines, the official airline of the Members' New York Weekend.

Call 1-800-435-8776 (toll-free) from out of state or (212) 595-1567 from inside New York State for reservations, brochures, and more information. Or write for a free brochure to: *Members' New York Weekend*, 108 West 81 Street, New York, New York 10024.

THANKS FOR THE FUTURE.

Before all eyes are riveted on our new exhibitions for 1985, we'd like to call attention to everyone who made them possible—the more than 300 corporations listed below and our other major contributors. This year the American Museum of Natural History will be exhibiting more wonders than ever before because these corporations exhibited such generosity.

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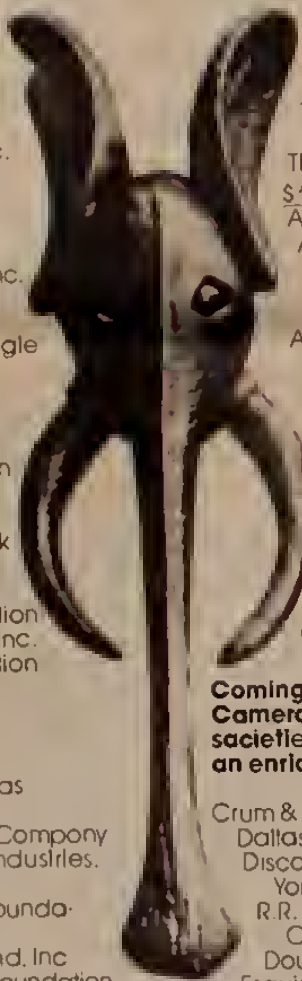


Coming April 26th—MAYA: Treasures of an Ancient Civilization. Dazzling art treasures reclaimed from the rain forest. Not to be missed.

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Coming July 17th—The Art of Cameroon.* Masks of secret societies, the splendor of royalty, an enriching summer experience.

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Coming April 18th—John James Audubon: Science into Art. A once-in-a-lifetime exhibition celebrating the bicentennial of Audubon's birth.



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We are particularly grateful to these corporations as well as a number of major sources including The City of New York, which owns the Museum buildings and provides funds for their operation and maintenance, and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 60 private foundations, 475,000 members, and numerous individual contributors. This advertisement prepared as a public service by Ogilvy & Mather.

*"MAYA: Treasures of an Ancient Civilization" has been organized by the Albuquerque Museum and made possible by generous grants from the City of Albuquerque, the State of New Mexico, and the Albuquerque Museum Foundation. Additional support has been received from the National Endowment for the Arts, and the National Endowment for the Humanities, Federal Agencies.

**"The Art of Cameroon" is organized and circulated by the Smithsonian Institution Traveling Exhibition Service (SITES) and made possible by a grant from Mobil Corporation.

AMERICAN MUSEUM OF NATURAL HISTORY

Museum Notes

Special Exhibitions

Captured Motion: Skeletal Studies of S. Harmsted Chubb. Through June 16, 1985. In the hands of S. Harmsted Chubb, a pioneer in the study of how animals move, skeletons became works of scientific art. A selection of these skeletons is exhibited with examples of the work of other scientists active in this study at the turn of the century. Gallery 1. See Page 7 for a lecture related to this exhibition.

Mountain of the Mist. Through September 2. A new photo exhibition about the Neblina expedition in Venezuela. Akeley Gallery.

John James Audubon: Science Into Art. April 18 through July 21. This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth. See Page 3.

Maya: Treasures of an Ancient Civilization. April 26 through July 28. This temporary exhibition from the Albuquerque Museum will include stone reliefs, pottery, jade and other works of art. Page 1.

Programs and Tours

Museum Highlights
Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Sunday from 10:30 a.m. to 12:30 p.m. and 1:30 p.m. to 4:30 p.m. Closed Mondays

and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

On New York's largest movie screen — 4 stories tall and 60 feet wide — the Naturemax Theater continues to dazzle audiences with two all-time favorite IMAX films: "To Fly!", a breathtaking view of the history of flight from hot-air balloons through rockets into space; and "Living Planet", an ecological tour of some of the earth's most awesome sights.

The box office is located in the 77th St. lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

Museum Information

Museum Hours. Monday,

Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details. Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Be on the lookout for the following exhibitions and events:

- *The Art of Cameroon* Mid-July through mid-October. 1,000-year-old terracotta sculptures, a more recent range of masks, figures, architectural ornaments, and other materials from the forests and grasslands of this West African nation.
- *Versions of the Traditional.* May 1, 8, and 15th, 6:00 p.m. Linder Theater. Music, poetry, myths and folk stories from around the world. Free. Call (212) 873-1300, ext. 559 for additional information. More in your May Rotunda.

Traditional Music and Folk Dances of the Andes

Thursday, April 4
7:30 p.m.
Main Auditorium
Free

Tahuantinsuyo, meaning "The Four Corners of the World," was the name the Incas gave to their empire. It is also a name chosen by a South American musical group because it represents the culture from which their music comes — highland South America, or the Andes.


Tahuantinsuyo's repertoire consists of songs from Ecuador, Peru, Bolivia and Northern Argentina. The musicians create their delicate and hauntingly beautiful music with indigenous flutes and percussion instruments (tarka, quena, pingullo, antara, sikus, bombo) as well as Spanish-introduced stringed instruments (guitar, cuatro). Rhythmically and harmonically, their songs continue a long tradition of South American music.

Accompanying the musicians are The Andes Dancers, twelve South American artists

who formed their group to celebrate and help preserve the folk traditions of South America. They first performed with Tahuantinsuyo at the 1973 Festival of the Andes at Lincoln Center. Since then, Tahuantinsuyo and the Andes Dancers have acquired the reputation of being among the finest groups to perform South American music and dance in the United States.

Traditional Music and Folk Dances of the Andes is presented by the Caribbean/Latin American Program of the Museum's Department of Education. It is one of several programs in celebration of "South American Month" at the Museum. Additional programs are listed on the calendar on page 12. For additional information, please call (212) 873-1300, ext. 514. Seating for this program is on a first-come, first-served basis.



Sun	Mon	Tue	Wed	Thu	Fri	Sat
<div>  </div> <div> <p>7 1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Traditional Andean Instruments and Music with Guillermo Guerrero. Folk Dances of the Andes with Los Ballarines Andinos. Traditional Andean Spinning and Weaving with Elayne Zom. Leonhardt People Center. Free</p> <p>Easter (Museum open)</p> <p>14 11:00 a.m., 1:00, 2:30, and 4:00 p.m. <i>The World of Animals. Members' Family Program.</i> Page 5.</p> <p>1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Leonhardt People Center. Free.</p> <p>2:00 and 4:00 p.m. Medley of Uruguayan Folk Songs. Linder Theater. Free. Call (212) 873-1300, ext. 514 for additional information.</p> <p>21 11:00 a.m. American Cetecean Society. Room 319. Free.</p> <p>1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Leonhardt People Center. Free. See April 20 listing.</p> <p>2:00 p.m. N.Y. Paleontological Society. Room 426. Free.</p> <p>2:00 p.m. N.Y. Turtle & Tortoise Society. Room 129. Free.</p> </div>	<p>1</p> <p>8 7:00 p.m. Ninth Annual Mack Lipkin Man and Nature Lecture Series with Dr. Gerald Edelman. Evolution: Adaptation and Organized Complexity. Tickets required. Page 4.</p> <p>7:00-9:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p> <p>10 7:00 p.m. Ninth Annual Mack Lipkin Man and Nature Lecture Series with Dr. Gerald Edelman. Developmental Biology: Molecular Bases of Animal Form. Tickets required. Page 4.</p> <p>7:00 p.m. Chubb; His Science, His Art. Page 7.</p> <p>7:30 p.m. N.Y. Mineral Club. Leonhardt People Center.</p>	<p>2</p> <p>9 7:00-9:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p> <p>16 7:00-9:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p> <p>6:00 p.m. Evolution of the Human Brain. Kaufmann Theater. Page 8.</p> <p>8:00 p.m. N.Y. Entomological Society. Room 129. Free.</p>	<p>3 7:45 p.m. Amateur Astronomers Association. Comet Showers and Mass Extinctions. Linder Theater. Free.</p> <p>10 7:00 p.m. Ninth Annual Mack Lipkin Man and Nature Lecture Series with Dr. Gerald Edelman. Developmental Biology: Molecular Bases of Animal Form. Tickets required. Page 4.</p> <p>7:00 p.m. Chubb; His Science, His Art. Page 7.</p> <p>7:30 p.m. N.Y. Mineral Club. Leonhardt People Center.</p>	<p>4 7:00 p.m. Systematics Discussion Group. Room 419. Free.</p> <p>7:30 p.m. Tahuantinsuyo: Traditional Andean Music and Folk Dances. Auditorium. Free. Page 11.</p>	<p>5 Full Moon</p> <p>Moon is at perigee</p> <p>Good Friday</p> <p>First night of Passover</p>	<p>6 1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Traditional Andean Instruments and Music with Guillermo Guerrero. Folk Dances of the Andes with Los Ballarines Andinos. Traditional Andean Spinning and Weaving with Elayne Zom. Leonhardt People Center. Free</p> <p>Passover begins</p>
	<p>15 7:00 p.m. Ninth Annual Mack Lipkin Man and Nature Lecture Series with Dr. Gerald Edelman. Neurobiology: Categorization and Learning. Auditorium. Tickets required. Page 4.</p> <p>1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Leonhardt People Center. Free.</p> <p>2:00 and 4:00 p.m. Medley of Uruguayan Folk Songs. Linder Theater. Free. Call (212) 873-1300, ext. 514 for additional information.</p>	<p>16 7:00-9:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p> <p>6:00 p.m. Evolution of the Human Brain. Kaufmann Theater. Page 8.</p> <p>8:00 p.m. N.Y. Entomological Society. Room 129. Free.</p>	<p>17 7:00 p.m. Ninth Annual Mack Lipkin Man and Nature Lecture Series with Dr. Gerald Edelman. The Grand Loop: Evolution and Awareness. Auditorium. Tickets required. Page 4.</p> <p>7:00 p.m. African American Lecture Series. Harlem Swings. Page 2.</p>	<p>18 9:00-11:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p> <p>John James Audubon: Science into Art exhibit opens today in the Naturemax Gallery. Page 3.</p>	<p>19 Moon is at apogee</p>	<p>20 1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Art Songs of Latin America with Manhattan Vocal Ensemble. Great Atlantic Forest of South America with Vic Banks. Music of Highland Peru with Juan Cutipa. Leonhardt People Center. Free.</p> <p>New Moon</p>
	<p>28 1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Afro-Brazilian Dances with Carolyn Clemons. Continuity and Change in Afro-Brazilian Religion with Marty Marks. Leonhardt People Center. Free.</p> <p>2:00 and 4:00 p.m. Brazilian Jazz with Thiago de Mello and Amazon. Kaufmann Theater. Free tickets distributed beginning 12:15 at the First Floor Information Desk.</p>	<p>29 6:00 p.m. Maya: Treasures of an Ancient Civilization. Special Members' Viewing. Tickets required. Page 1.</p> <p>7:00-9:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p>	<p>24 6:30 p.m. Lapidary and Gem Society. Leonhardt People Center. Free.</p> <p>7:00 p.m. African American Lecture Series: The Basic Years. Kaufmann Theater. Page 2.</p>	<p>25 9:00-11:00 a.m. Bird Walk in Central Park. Meet at 77th Street and Central Park West. Fee \$4.00. For additional information call: (212) 873-7507.</p>	<p>26 Maya: Treasures of an Ancient Civilization exhibit opens today in Gallery 3. Page 1.</p> <p>8:00 p.m. N.Y. Microscopical Society. Room 419. Free.</p>	<p>27 1:00-4:30 p.m. South America: Tradition, Crafts, and Folklore. Afro-Brazilian Dances with Carolyn Clemons. Continuity and Change in Afro-Brazilian Religion with Marty Marks. Leonhardt People Center. Free.</p> <p>2:00 p.m. Choral Music of Birds. Bees and Bugs. Page 3.</p> <p>First Quarter (half moon)</p>



April 1985 **American Museum of Natural History**

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History

Vol. 10, No. 5 May 1985



Margaret Mead in Samoa, 1925.

Film and Margaret Mead

Wednesday, May 15
7:00 p.m.
Main Auditorium
Free

Margaret Mead was one of the first anthropologists to use film and photography in her fieldwork. Through the use of these tools she could capture the essence of rapidly-changing cultures, and preserve them for all to see.

Dr. Paul Byers, anthropologist and professor at Columbia University's Teacher's College, first met Dr. Mead

in Australia while working as a journalist and photographer. He was so inspired by her use of film as an anthropological tool that he later became her student.

In *Film and Margaret Mead*, Dr. Paul Byers will discuss Dr. Mead's use of film. Several of her short classic films as well as some unedited footage

and classroom materials that she once used will be shown.

Film and Margaret Mead is presented by the Museum's Education Department. Seating is on a first-come, first-served basis. There are no tickets and no reservations. For further information, please call (212) 873-1300, ext. 566

Dance

Join Matteo and a group of talented guest artists when they perform and combine dance styles from India, the Middle East, Spain, and the United States in *Sounds, Symbols, and Styles*.

Page 5

Inanna

By popular demand, storyteller Diane Wolkstein brings the Sumerian goddess Inanna to the Museum once again. Learn the story of this powerful ancient goddess as she travels on Earth and in the underworld.

Page 5

New York Revisited

Take a new look at the metropolitan area by learning about its archaeology and experiencing its waterways in three special events created by the Department of Education.

Page 4

Central America

May is Maya Month at the Museum. Films and videos about indigenous rituals, archaeological discoveries in Central America, and changing cultural mores will be featured two days this month in the Kaufmann and Linder Theaters. Other programs celebrating Central American cultures can be found throughout this issue.

Page 7

Versions of the Traditional

Wednesday, May 1, 8 and 15
7:00 p.m. Linder Theater Free



Maori carving.

Through readings of poetry, myths, and fables, Museum visitors will become more familiar with the world views of various indigenous peoples in our seventh annual presentation of *Versions of the Traditional*.

May 1. Joseph Bruchac will read from his forthcoming book, *Iroquois Legends: Tales of Heroes and Heroines, Monsters and Magic*, and from *The Wind Eagle and Other*

Abenaki Stories. Mr. Bruchac is a poet, writer, storyteller, teacher, and co-editor of *The Greenfield Review*. Awarded a Rockefeller Foundation fellowship in 1982, Mr. Bruchac has been studying themes of continuance in the work of contemporary Native American poets.

May 8. Karen Kennerly will read from her book, *Hesitant Wolf and Scrupulous Fox: Fables Selected from World*

Literature. Ms. Kennerly's first book, *The Slave Who Bought His Freedom*, won an award from the New York Public Library as one of the best children's books of 1970. Editor of numerous translations, Ms. Kennerly is presently the Executive Director of P.E.N.

May 15. Laura Simms and Steven Gom will discuss and perform Maori creation myths. Ms. Simms, who is well known for her vivid storytelling, has recently completed a radio series for WBAI-New York entitled "The Green Stones are Shining," based on Maori stories and rituals. Her book, *The Horse-Headed Fiddle — Retelling of a Mongolian Myth*, will be published during the fall of 1985.

Steven Gom is a musician, composer and ethnomusicologist. He has recorded and performed in the United States, Canada and Europe.

Versions of the Traditional was created with the intention of translating and preserving the literatures of vanishing and already-vanished cultures.

It has been made possible by a grant from the New York State Council on the Arts to the Touchstone Center (a non-profit educational organization founded in 1969), and by gifts to the Museum's Education Department from the Helena Rubinstein Foundation and the Vincent Astor Foundation.

Richard Lewis, Director of the Touchstone Center, will introduce each week's program. Seating is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 559.

El Pajaro Cu (A Bird Named Cu)

Sunday, May 19
2:00 and 4:00 p.m.
Kaufmann Theater
Free



Because the colors of his feathers were not as beautiful as those of the other birds god Tonatiuh had created, Cu was a very unhappy bird. He was so unhappy that he did nothing but complain all day long.

Finally, all of the other birds decided to each give one of their most colorful feathers to Cu. Cu then became the prettiest of them all, but also the most vain and selfish.

El Pajaro Cu is a lovely Mayan legend from Yucatan,

Mexico. It will be performed in English by the Bubbles Players, Inc., a Hispanic children's theater in Queens, which is partially funded by the New York State Council on the Arts.

El Pajaro Cu is presented by the Caribbean Latin American Program of the Museum's Department of Education. Seating is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 514.

Mayan Music and Dance

Tuesday, May 7
7:30 p.m.
Main Auditorium
Free

Mayan music and dance were traditionally performed on ceremonial occasions to heighten spiritual states and to reawaken memories of ancient and mystical worlds. Members can get a taste of these ancient worlds this month in the music of Xochimoki (Flower of the Ancient Ones) and the dances of Grupo Taoseño.

The musicians of Xochimoki will share with their audience the music, poetry, and indigenous languages of Mexico and Central America. They will play over 200 indigenous instruments, including drums made of turtle shell and bamboo, and clay flutes in the shapes of animals and mythical figures.



Grupo Taoseño

The five dancers of Grupo Taoseño will perform dances from Mexico and South America, combining traditional and modern dance steps and styles.

This program is sponsored

by the Museum's Department of Education. There are no tickets and no reservations. Seating is on a first-come, first-served basis. For further information, please call (212) 873-1300, ext. 514.

ROTUNDA

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Participating, Donor and Contributing Members are invited to a

Behind-the-Scenes Tour of the Department of Anthropology

Sunday, May 5 or Wednesday, May 8
\$7.00 and open only to Members and their guests

Meet five Museum anthropologists and learn about their work in this behind-the-scenes tour of the Department of Anthropology.

Members will view Museum storage areas and speak with anthropologists about their

work in social anthropology, physical anthropology, archaeology, and textile conservation. The department's chairman will give Members a special glimpse of a hall-in-progress which is not scheduled to open for more

than a year and a half.

Following the tour, Members are invited to have coffee, tea, and cider in the Audubon Gallery. For ticket availability, please call the Membership Office at (212) 873-1327.

Celestial Rhythms

Wednesday, May 1 and Thursday, May 2, 7:30 p.m.
Sky Theater
\$5.00 for Participating, Donor and Contributing Members
\$8.00 for Associates and non-members

Sit relaxed under the starry night sky of the Hayden Planetarium, and enjoy listening to a live concert of contemporary and classical synthesizer music as you watch sunsets fade, constellations swirl, and laser lights dance on the Planetarium's Sky Dome.

Musical selections will include pieces from "Star Wars" and "The Right Stuff," Pachelbel's "Canon in D," and original contemporary works.

Performers Jonn Semie, Mark Petersen, and Barry Hayes are talented young

musician-composers who have created scores and soundtracks for planetariums across North America.

For additional information on *Celestial Rhythms*, please call (212) 873-5714, Monday through Friday between 9:30 a.m. and 4:30 p.m.



Natural Curiosity

Josh Friedman, age 6, asks: **How was the earth formed? What was the temperature? How many gases was the earth made up of?**

Martin Prinz, chairman of the Department of Mineral Sciences, responds: The earth was formed approximately 4½ billion years ago from primitive meteoritic material. At that time, this material stuck together, starting out as a small mass, and eventually becoming planet-sized.

Sources of heat inside this new earth made it melt. Gases were among the materials that formed the earth. They even-

tually came to the surface and formed the earth's first atmosphere. We believe today that some of these gases were methane, ammonia, carbon dioxide, water, and others.

The materials that made up the earth first started coming together at about 1800° Centigrade (over 3,000° Fahrenheit).

Natural Curiosity is a new column that will appear in *Rotunda* whenever space permits. Please address your natural history questions to *Natural Curiosity*, Membership Office, American Museum of Natural History, West 79th Street and Central Park West, New York, NY 10024

Happenings at the Hayden

Sky Shows

The Violent Universe. Through June 24. Black holes, exploding galaxies and the birth of the cosmos. This exciting program, narrated by the recorded voice of Vincent Price, takes you on a tour of our dynamic and fascinating universe, using an unprecedented array of special effects.

Sky Show admission for Participating, Donor and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and Sky Show times, please call (212) 873-8828.

Wonderful Sky

Through dialogue, song and audience participation, children explore rainbows, sunsets, and distant, sparkling stars in this special sky show for children from three to six years of age. This popular show features images of children's favorite Sesame Street Muppets, including Big Bird, Oscar, and Cookie Monster. For *Wonderful Sky* ticket and price information, please call (212) 873-5714.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings. 7:30 and 10:30 p.m.;

Heavy Laser. Featuring a combination show of The Police, Van Halen, The Who, and Rush.

9:00 p.m. *Laser Floyd.* With the music of Pink Floyd.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

School Information

The Planetarium offers many programs for young children. For school information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.

© 1985, Children's Television Workshop, Muppets, Inc.

Special Events

By the Department of Education

A Symposium: Archaeology on the Island of Manhattan

Saturday, May 11
2:00 — 5:00 p.m.
Kaufmann Theater
\$13.50 for Members, \$15 for non-members

Dig into the past of New York City. In a slide-illustrated symposium, archaeologists will present the results of field excavations they have conducted on the island of Manhattan. Sites to be discussed range from a seventeenth-century Dutch warehouse district near the Battery — the earliest European trading station in New Amsterdam — to a mid-nineteenth century residential development in midtown. All of the sites featured in the symposium have been excavated recently.

Symposium topics and speakers include the following:

The City Grows North, with Frederick A. Winter, Moderator. Dr. Winter will discuss the archaeological site at 53rd Street and 3rd Avenue. He is President of the New York

Society of the Archaeological Institute of America, and a Lecturer in the Department of Classics at Brooklyn College.

New Discoveries and the Future of New York's Past, with Sherene Baugher. Dr. Baugher is a full-time archaeologist working for The New York City Landmarks Preservation Commission. She is responsible for overseeing all archaeological work conducted in the city.

The Uncovering of a Merchant Ship, with Joan Geismar. Dr. Geismar will discuss the 92-foot merchant ship that was found at 175 Water Street on the East Side of New York City. She is a contract archaeologist actively working in the metropolitan area, and Vice-President of P.A.N.Y.C., an association of

professional archaeologists.

The Archaeologist on Wall Street, with Bertram Herbert. Mr. Herbert will discuss the Barclay Bank site on Wall Street. He has worked in archaeology for thirteen years, focusing on urban archaeology in Atlanta, Washington, D.C., and New York, among other places.

For additional information, please call (212) 873-1300, ext. 559.

Participating, Donor, and Contributing Members may contact the Department of Education for reservations at (212) 873-7507. Tickets can be picked up and paid for on the afternoon of the Symposium.



The land beneath the river.



Urban archaeologists at work.

Waterways of New York

Tuesday, June 4
5:30 — 8:30 p.m.
\$18 for Members, \$20 for non-members

Take a three-hour boat trip around Manhattan at twilight to survey the geology of the region. Learn about the origins of the Palisades and see the landscapes of Manhattan Island while traveling through North America's most southern fjord.

Participants will gain a deeper understanding of the

origins of Manhattan, its unique geology, and its intricate waterways. Sidney S. Horenstein of the Museum's Department of Invertebrates provides the running commentary. Bring your own box supper.

To register for this twilight cruise, please use the coupon below.

Nooks and Crannies

An Evening Cruise around New York Bay
Tuesday, June 11
5:30 — 8:30 p.m.
\$18 for Members, \$20 for non-members

On this three-hour cruise, discover forts from the War of 1812, and a new way of looking at Brooklyn, the land built by glaciers a mere 17,000 years ago. Find out why the Verrazano Narrows Bridge was built where it was, and how the Narrows were formed. Cruise past Staten Island's high coastal hills, the

abundant bird life of Kill van Kull and the Statue of Liberty.

Sidney S. Horenstein of the Museum's Department of Invertebrates will be on board to provide fascinating details of this area. Bring your own box supper.

To register, please use the coupon below.

Boat Trips Coupon (See articles for prices)

Advanced registration by mail is urged. There are no refunds. Please note that only Participating, Donor, and Contributing Members may take the discounted Members' price.

	Number of Tickets	Price	Total
Waterways of New York:	_____ x _____	_____ = \$ _____	
Nooks and Crannies:	_____ x _____	_____ = \$ _____	

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category (if applicable): _____

Please make your check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to: Special Events, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. For further information, please telephone: (212) 873-7507.

May Members' Programs Coupon

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total amount enclosed: \$ _____

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: May Members' Programs, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Max's Flying Saucer. Saturday, May 11. \$2.00 and open only to Participating, Donor, and Contributing Members. Please indicate a first and second choice if possible.

_____ 10:00 a.m. _____ noon

Number of tickets at \$2.00 each: _____

Amount enclosed for program: \$ _____

Adirondack Celebration. Tuesday, May 14. Free for Members, \$3.00 for non-members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00 each.

Number of free tickets: _____

Number of tickets at \$3.00 each: _____

Amount enclosed for program: \$ _____

Sounds, Symbols, and Styles. Tuesday, May 21. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price of \$3.00. Associates are entitled to one. All other tickets are \$6.00.

Number of tickets at \$3.00 each: _____

Number of tickets at \$6.00 each: _____

Amount enclosed for program: \$ _____

Inanna: Queen of Heaven and Earth. Friday, June 7. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price of \$8.00. Associates are entitled to one. All other tickets are \$10.00.

Number of tickets at \$8.00 each: _____

Number of tickets at \$10.00 each: _____

Amount enclosed for program: \$ _____

The Cat that Walks Alone. Tuesday, June 25. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00.

Number of free tickets: _____

Number of tickets at \$3.00 each: _____

Amount enclosed for program: \$ _____

Please look over your coupon before mailing it to the Museum. Have you included your name and address? Does the total amount enclosed equal the sum of the amount enclosed for each program? Thank you for checking.

Inanna: Queen of Heaven and Earth

Friday, June 7

8:00 p.m.

\$8.00 for Members, \$10.00 for non-members

Kaufmann Theater

The moving saga of Inanna's life, both upon Earth and in the underworld, is inscribed on clay tablets and depicted in wall murals from the ancient civilizations of Sumer and Babylon. It is the oldest known recorded story.

Inanna, the girl who became a woman and a goddess, was born of divine parents and descended to

Earth to become Queen of Sumer. She was the center and source of fertility, and the unrivalled goddess of love.

Storyteller Diane Wolkstein's powerful performance of the 4,000-year-old cycle of Inanna returns to the Museum for the third time, by popular demand. Accompanied once again by the haunting music of

Geoffrey Gordon, Ms. Wolkstein will recreate the girlhood, the marriage, the journeys and the power of this ancient goddess, whose anger was capable of sending her lover into the dark underworld, yet whose love was all-encompassing.

To register for the program, please use the adjacent May Members' Programs Coupon.

Sounds, Symbols and Styles

Tuesday, May 21

7:30 p.m.

Main Auditorium

\$3.00 for Members, \$6.00 for non-members

See the dances and hear the music of countries as culturally diverse from one another as India and Spain in Matteo's latest potpourri of movement and rhythm from around the world.

Sounds, Symbols and Styles will include Middle Eastern dancers who play zils (finger cymbals) to narrate a dramatic story; hand clapping, castanets and foot beats of Andalusia; ethnic vocal

expressions, and the intriguing origins of various ethnic dance styles. Matteo, a performer and lecturer renowned for his juxtaposition of Eastern and Western styles, will explain the symbolism of the gestures used in these and the many other dance forms to be featured in this program.

In one of the program's highlights, Matteo will perform "Lord of the Dance," in which Indian Hasta Mudras (sym-

bolic hand gestures) are combined with a traditional Shaker hymn. In another fascinating combination of cultures, castanets will be played to the music of Scott Joplin.

Matteo has shared ethnic dance and music with audiences throughout the world. He is one of the Museum's most popular performers.

To register for the program, please use the adjacent May Members' Programs Coupon.

Max's Flying Saucer

Saturday, May 11, 10:00 a.m. and 12:00 noon

Sky Theater

\$2.00 and open only to Participating, Donor and Contributing Members

Like many young children, Max was curious about the universe. Imagine his excitement when he was given a chance to explore it!

Children ages six to ten can join Max and his new alien friend Phui in a journey through our own solar system

and deep space. Phui will discuss the stars, and the possibilities of life on other planets. After welcoming children to his home planet Blatzfemdle, Phui will lead them to the edge of our galaxy for a spectacular view of more than 100 billion stars.

In addition to learning about space with Max, children will make their own flying saucers out of everyday items, and create a starscape.

Members may step into *Max's Flying Saucer* by using the adjacent May Members' Programs Coupon.



The Cat That Walks Alone

Tuesday, June 25

7:30 p.m.

Main Auditorium

Free, and open only to Members

When a bobcat kitten is born, it is completely dependent on its mother, and remains so for almost a year. These months of infancy and kittenhood are the only periods of the bobcat's life when it is in the constant company of others of its kind. Once it learns to hunt efficiently, it lives a solitary life, feeding on small animals such as rabbits and rodents.

Join Hope Ryden in a Members' Program on these fascinating wild cats of North America. Ms. Ryden is a naturalist, writer and photographer who has spent several years studying bobcats in the wild. In this program, she will show beautiful slides of this rarely-seen animal, whose dappled coat of fur provides excellent camouflage in most types of vegetation.

Ms. Ryden will discuss the behavioral patterns, range, and life cycle of these animals, which were once known to inhabit forty-eight states. Now,



Hope E. Ryden

due to the spread of human populations, and to the fur industry, the bobcats' survival is threatened in many areas of our country.

In addition to her work with bobcats, Ms. Ryden has studied, photographed, and written about wild horses, coyotes, eagles, and the little deer of the Florida Keys. Her book,

America's Last Wild Horses, led to passage of protective legislation by Congress. Her wildlife and conservation presentations at universities and science museums have been enthusiastically received.

To register for *The Cat That Walks Alone*, please use the May Members' Programs Coupon on page 5.

The Adirondacks: A Celebration

Tuesday, May 14 6:30 p.m.

Free for Members, \$3.00 for non-members

On May 15, 1985, the Adirondack Park will be 100 years old. Today, it contains more wild country than any other area east of the Mississippi River. This month, Members are invited to celebrate the Park's centennial.

From 6:30 to 7:30 p.m. in the Hall of Northwest Coast Indians, Members can view original artwork depicting Adirondack plant life, animal life, and geological features.

Several Museum scientists will set up tables containing specimens of birds, reptiles and amphibians, mammals, fish, and insects that are found in the Adirondack region. In addition, experts on the Adirondack region will talk about geology, acid rain, and Adirondack plant and animal life.

Beginning at 7:30 p.m., a slide program entitled *Celebrate the Adirondacks* will fea-

ture striking photographs and fascinating historical and political events of the Adirondack region. Peter Berle, former New York State Assemblyman and former Commissioner of the Department of Environmental Conservation, will narrate the program.

This program is presented in cooperation with the Adirondack Council. To register, please use the Members' Programs Coupon on page 5.



© 1984, Anne E. Lucy

Identification Day

Saturday, June 1
2:00 — 5:00 p.m.

Dana Wing

Free

Bring your rocks, shells, insects, fossils, feathers, pottery, minerals, bones, fabrics and artifacts (no gemstones please) to the Dana Wing (first floor) on June 1, when staff members from the Museum's scientific departments will do their best to solve any linger-

ing mysteries that surround them.

Find out what your treasures really are!

This program is sponsored by the Department of Education. For additional information, call (212) 873-1300, ext. 566, on weekdays.

Members' Tour of the Month The Mayan World

In June and July, Members have a special opportunity to learn about a great civilization that once thrived in Mexico and parts of Central America. In this special tour of the new temporary exhibition *Maya: Treasures of an Ancient Civilization*, volunteer Museum Highlights Tours guides will share with Members fascinating information about Mayan art and its context within the highly-developed culture that produced it.

Members will view artifacts made of stone, jade, wood, shell, and clay, and learn about Mayan mythological figures, economies, and architec-

ture. Mayan achievements in art, calendrics, hieroglyphic writing and architecture will be explored.

In addition to seeing the new exhibition, Members will also visit the Hall of Mexico and Central America. This permanent exhibition contains several Mayan artworks, including sculptures from the Yucatan, and a beautiful animal form monument, intricately carved with symbolic ornamentation and elaborate hieroglyphs.

To register for this Members' Tour of the Month, please use the coupon below.

Members' Tour: The Mayan World. Six Wednesday evenings. Please indicate a first, second, and third choice of tour times.

June 5: _____	6:00 p.m. _____	6:30 p.m. _____	7:00 p.m. _____
June 12: _____	6:00 p.m. _____	6:30 p.m. _____	7:00 p.m. _____
June 19: _____	6:00 p.m. _____	6:30 p.m. _____	7:00 p.m. _____
June 26: _____	6:00 p.m. _____	6:30 p.m. _____	7:00 p.m. _____
July 10: _____	6:00 p.m. _____	6:30 p.m. _____	
July 17: _____	6:00 p.m. _____	6:30 p.m. _____	

Number of people: _____

Name: _____

Address: _____

City: _____

State: _____

Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *The Mayan World*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Central American Film and Video Festival

Saturday, May 4 and Sunday, May 5
Films: 1:00 — 4:30 p.m., Kaufmann Theater
Videos: 2:00 — 4:00 p.m., Linder Theater



Archaeologists excavate a Maya pot.

To highlight Maya Month at the People Center, the following films and videos will be presented in the Kaufmann and Linder Theaters.

Films

Saturday May 4

1:00 p.m. *Maya Lords of the Jungle* by John Angier takes a look at both older theories and more recent archaeological interpretations of the once great Maya civilization of Central America. In the past, archaeologists theorized that Maya peoples practiced slash-and-burn agriculture, while more recent excavations show that Maya agriculture was practiced by using fields developed on swampy lands. The economic, social and political bases of Maya society and its mysterious collapse around 900 A.D., are examined in this film.

2:00 p.m. *Todos Santos Cuchumanta: Report from a Guatemalan Village* by Olivia Carrescia documents the annual sequence of the harvest, the elaborate fiesta of Todos Santos, and the seasonal migration of villagers to work in the cotton plantations. Interviews with men and women of Todos Santos reveal the many changes that have been occurring in Guatemala for some decades. To this once self-sustaining farming community, for instance, cash is becoming an increasingly important component of their economy.

3:15 p.m. *Brujo (Shaman)* shows the distinctive healing ceremonies of three Indian communities: Diego, a Maya curandero (healer) from Chichicastenango, Guatemala, sacrifices a chicken to remove a spell cast on a woman; the Mazatec curandero Mariz-Cruz

from Oaxaca, Mexico, employs hallucinogenic mushrooms ("flesh of the gods") to cure an ailing Indian. In the third ceremony Brujo, a Tzotzil Indian shaman, uses eggs, candles and a pulse reading in an attempt to cure the filmmaker Claudine Viallon.

3:45 p.m. *Appeals to Santiago* by Duane Metzger and Carter Wilson is an ethnographic documentary of an eight-day "cargo" ritual of the Maya in Tenejapa, a town in Chiapas in southern Mexico. A "cargo" ritual, held to celebrate the patron saints of the village, is sponsored by village leaders who have been responsible for the care of the saints' images during the preceding year. Ceremonies involve processions, feasting, and consumption of alcohol.

Sunday, May 5

1:00 p.m. *El Norte*. This beautifully filmed feature tells of the brave struggles of a Guatemalan brother and sister who undertake the dangerous task of crossing the border for the promise of a better life in the United States. Once in California, their troubles are far from over.

Videos

Saturday, May 4

Vanishing Forest (2:00 p.m.), *Living Maya* (2:30 p.m.), *Modern Maya Women* (3:30 p.m.)

Sunday, May 5

Swidden Cycle of Lancandon Maya (2:00 p.m.) and *To Put Away the Gods* (2:30 p.m.)

This festival is presented by the Department of Education. Seating is on a first-come, first-served basis. For additional information, call (212) 873-1300, ext. 514.

Museum Notes

Special Exhibitions

Captured Motion: Skeletal Studies of S. Harmsted Chubb. Through June 16. In the hands of S. Harmsted Chubb, a pioneer in the study of how animals move, skeletons became works of scientific art. A selection of these skeletons is exhibited with examples of the work of other scientists active in this study at the turn of the century. Gallery 1.

Mountain of the Mist.

Through September 2. A new photo exhibition about the Neblina expedition in Venezuela. Akeley Gallery.

John James Audubon:

Science into Art. Through July 21. This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth. Naturemax Gallery.

Maya: Treasures of an Ancient Civilization.

Through July 28. This temporary exhibition from the Albuquerque Museum includes stone reliefs, pottery, jade and other works of art. Gallery 3.

Programs and Tours

Museum Highlights

Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the second-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science

Center introduces young people to the wildlife and rocks of

New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, 2:00-4:30 p.m. and weekends, 1:00-4:30 p.m. Closed Mondays and holidays all year.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Coat Checking: Daily from 10:00 a.m. to 5:30 p.m. in the basement. Rate is \$.50 per item.

Naturemax Information

On New York's largest movie screen — 4 stories tall and 60 feet wide — the Naturemax Theater continues to dazzle audiences with two all-time favorite IMAX films: "To Fly!", a breathtaking view of the history of flight from hot-air balloons through rockets into space; and "Living Planet", an ecological tour of some of the earth's most awesome sights.

The box office is located in the 77th St. lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance

is on 81st Street between Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours.

Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant.

Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Terrace Cafe. Open daily, May 15, through early September from 11:30 a.m. to 4:30 p.m. Located on the West 77th St. Ellipse.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

∞ Sun

Mon

Tue

Wed

Thu

Fri

Sat

Visit the John James Audubon: Science into Art Exhibition, in the Naturemax Gallery through July 21. Sponsored by Johnson and Higgins, the exhibition features Audubon's work as a naturalist, printmaker, and painter.

6

5 Members' Behind-the-Scenes Tour of the Department of Anthropology. Reservations required. Page 3.
1:00-4:30 p.m. Central American Month. See May 4 listing.
1:00-4:30 p.m. Central American Leonhardt People Center. Free.
1:00-4:30 p.m. Central American Film and Video Festival. Kaufmann and Linder Theaters. Free. Page 7.



12 2:00 p.m. N.Y. Shell Club. Room 419. Free.
1:00-4:30 p.m. Maya Month.
1:00-4:30 p.m. Maya Month. Mayan Dances. Secrets of the Mayan Calendar. Cosmology of the Mayan Pyramids.
Members of the Adriatic and Aegean Adventure depart for Venice, Yugoslavia, and Greece. For information on future Discovery Tours call (212) 873-1440.

20

19 1:00-4:30 p.m. Maya Month. See May 18 listing.
1:00 p.m. American Cetacean Society. Room 319. Free.
2:00 p.m. N.Y. Paleontological Society. Room 426. Free.
2:00 and 4:00 p.m. El Pajaro Cu. (A Bird Named Cu) with The Bubbles Players Inc. Kaufmann Theater. Free. Page 2.

New Moon

26 1:00-4:30 p.m. Maya Month. Guatemalan Culture and other Central American Countries. Leonhardt People Center. Free.

27

First Quarter (half moon)
Memorial Day Museum open.

28

8:00 p.m. Met Grotto: Nat'l Speleological Society. Room 129. Free.

29

21 7:30 p.m. Sounds, Symbols and Styles with Motte. Members' Evening Program. Auditorium. Tickets required. Page 5.
8:00 p.m. N.Y. Entomological Society. Room 129. Free.

22 6:30 p.m. Lapidary & Gem Society. Leonhardt People Center. Free.

14 6:30 p.m. The Adriatic rondo: A Centennial Celebration. Special Members' Program. Tickets required. Page 6.

15 7:00 p.m. Margaret Mead and Film. Lecture with Dr. Paul Byers. Auditorium. Free. Page 1.
7:00 p.m. Versions of the Traditional. Discussions and performance of Maori myths with Laura Simms and Steven Gorn. Linder Theater. Free. Page 2.

17

16 2:00 p.m. The Matting Game. Gallery Talk with L. Breslow. Assemble at first floor Information Desk. Free.

Moon is at apogee



23 2:00 p.m. Plants of Coniferous Forests. Gallery Talk with H. Schiller. Assemble at first floor Information Desk. Free.
Members of the China: The Silk Route Tour arrive in Hangzhou. For information on future Discovery Tours call (212) 873-1440.

31

30 2:00 p.m. Dinosaurs: Unanswered Questions. Gallery Talk with J. Munoz. Assemble at first floor Information Desk. Free.

2 2:00 p.m. Animals Harmful to Man. Gallery Talk with B. Brandon. Assemble at first floor Information Desk. Free.
7:00 p.m. Systematics Discussion Group. Room 419. Free.
7:30 p.m. Celestial Rhythms. Hayden Planetarium. Page 3.

3

Moon is at perigee

4 11:00 a.m. N.Y. Map Society. Room 129. Free.
1:00-4:30 p.m. Maya Month. Precolumbian Instruments. Mayan Folktales of Creation Goddesses and Espanos. Oaxaca Folk Art. Leonhardt People Center. Free.
1:00-4:30 p.m. Central American Film and Video Festival. Kaufmann and Linder Theaters. Page 7.

Full Moon

10

9 2:00 p.m. Bison Hunting and Farming on the Great Plains. Gallery Talk with P. Sanjacon. Assemble at first floor Information Desk. Free.

11 10:00 a.m. and 12:00 noon. Max's Flying Saucer. Members' Family Program. Page 5.

1:00-4:30 p.m. Maya Month. Mayan Dances. Secrets of the Mayan Calendar. Cosmology of Mayan Pyramids. Leonhardt People Center. Free.
2:00-5:00 p.m. A Symposium: Archaeology on the Island of Manhattan. Page 4.

18

1:00-4:30 p.m. Maya Month. Mexican Regional Dances. Makers of Molas: Cuna Women of the San Blas Islands of Panama. Leonhardt People Center. Free.

2:00 p.m. Easter Island. Sergio Rapu. Governor of Easter Island. presents a slide show and discussion of archaeological excavations on the island. Kaufmann Theater. Free.

25

1:00-4:30 p.m. Maya Month. Guatemalan Culture and other Central American Countries. Leonhardt People Center. Free.

May 1985
American Museum of Natural History

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History

Vol. 10, No. 6 June 1985



A Solitary Cat

Tuesday, June 25

7:30 p.m.

Main Auditorium

Free, and open only to Members

Few people have ever seen a wild bobcat. It took Hope Ryden nearly a year of tracking this animal before she came upon one. With their acute hearing and well-camouflaged coats, bobcats usually conceal themselves long before approaching humans come into view.

The bobcat, which lives exclusively in North America, was once known to inhabit 48 states. Now, due to the

spread of human population and intense pressure from the fur industry, the bobcat's survival is threatened in many areas of the country.

Hope Ryden, naturalist, writer, lecturer and photographer, spent several years in the field studying the bobcats of California, Arizona, Idaho and Florida. Using slides, Ms. Ryden will discuss the home range, life cycle, and general solitary nature of this

fascinating animal.

In addition to her work with bobcats, Ms. Ryden has studied and written about several other animals, including wild horses and coyotes. Her articles and photographs of wildlife have appeared in several major magazines.

To register for *The Cat That Walks Alone*, please use the June Members' Programs Coupon on page 5.

Faces

Children ages 8 through 14 can enter a dragon drawing contest, do a corn word puzzle and learn about a new anthropology magazine for children.
Page 3

Eyes, Body, and Hands

Dance, mime and dramatic readings join together in this special program designed for both hearing and hearing-impaired Museum visitors.
Page 2

Insects and Light

Why are nocturnal insects attracted to light? A Member's question sparks off further inquiry about insect behavior.
Page 6

The Goddess Returns

Inanna, the great Sumerian goddess, returns to the Museum to tell her ancient story of love, betrayal, disappearance, and return.
Page 5

A Flat Neighborhood

Find out why Gramercy Park is flat, in a walking tour with Sidney Horenstein of the Department of Invertebrates.
Page 5

Twilight Cruises Close to Home

Two Tuesdays, June 4 and June 11, 5:30 to 8:30 p.m.

Bring a box supper and enjoy two informative three-hour twilight cruises featuring Sidney S. Horenstein of the Museum's Department of Invertebrates.

On June 4, Mr. Horenstein will conduct *Waterways of New York*, an excursion around Manhattan Island. Participants will learn about the

unique geology of the Big Apple while cruising through North America's most southern fjord.

Nooks and Crannies, on June 11, will explore New York Bay. Mr. Horenstein will provide fascinating details about the geology of Brooklyn and Staten Island as you discover forts from the War of

1812, and view the bird life of Kill van Kull.

The price for each cruise is \$18 for Participating, Donor, and Contributing Members, and \$20 for Associates and non-members. For information about how to register, please call (212) 873-7507, between the hours of 9:00 a.m. and 5:00 p.m.



Sidney Horenstein

Dragon in New York



June is China Month at the Museum. One of this month's highlights is the Dragon Dance, performed by the Ho-Nan Schau-Lin Association, June 1 and 2. See the calendar on page 8. The dragon was created by Master Chal Meng Woo.

Eyes, Body, and Hands

A Program for the Hearing Impaired

Wednesday, June 5

7:00 p.m.

Linder Theater

Free

Vibrations/Productions in Deaf Awareness is a unique company of hearing impaired and hearing entertainers who perform theater, dance and mime. In *Eyes, Body and Hands*, the members of Vibrations use both sign language and the spoken word to create a common ground of communication between the

worlds of silence and sound. The performance includes dance, mime and dramatic readings.

This program is presented by the Museum's Department of Education. Seating is on a first-come, first-served basis. There are no tickets and no reservations. For information, call (212) 873-7507.



Vibrations/Productions

ROTUNDA

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June 1985

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FACES

An Anthropology Magazine for Young People

If you are between the ages of 8 and 14 and are curious about how people in different times and places live and have lived, you will enjoy reading *Faces*. *Faces* is a magazine that comes

out ten times a year. Each issue has a theme, and contains articles, pictures, and activities. Every once in a while, *Faces* contains a contest like the one below.

Some of the themes that have appeared in *Faces* include Pueblo farmers, moveable houses, and why people dance. Future issues of *Faces* will contain articles, pictures and activi-

ties about underwater archaeology, greetings, and ghosts. Members can take advantage of a special discount subscription rate for *Faces* by using the coupon below.

Draw Your Favorite Dragon

A Contest for Dragon Lovers
Ages 8 to 14



What do you think a dragon looks like?

Readers of the April issue of *Faces* magazine found that it isn't easy to give a single description of a dragon that is accurate in all cases. For instance, one writer described the most familiar type of dragon as "having the head of a camel, horns of a deer, eyes of a rabbit, ears of a cow, neck of a snake, belly of a frog, scales of a fish, claws of a hawk, and paws of a tiger."

When you think of a dragon, what comes to your mind? We would like to see a drawing of your own original dragon. Perhaps you will want to use

features of some of the animals shown on this page. Perhaps the dragon of your imagination is different from any ever thought of before!

Send your drawings to *Faces*, 20 Grove Street, Peterborough, New Hampshire 03458. The five most original dragons will appear in the September issue of *Faces*.

Please be sure to draw your dragon with a black marker (drawings done in color cannot be used) on unlined paper. Your dragon must be no larger than 8 inches by 10 inches. **The deadline for submissions is June 28, 1985.**

Good luck!



Subscription Application

I would like to order a subscription to *Faces*, a magazine about people, at the special Members' price of \$13.95 (regular price: \$16.50).

- ☐ I've enclosed a check or money order for \$13.95.
☐ Please bill me.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Please mail this coupon to: *Faces*, 20 Grove Street, Peterborough, New Hampshire 03458. Offer expires July 1, 1985.

Making Corn Grow



Grading and drying corn in the Hopi village of Oraibi, 1934. Traditionally, corn is the most important crop of these Native Americans.

Corn once meant a little particle of something, such as a seed or a grain of wheat. Then the meaning of the word grew until it also came to describe the most important grain crop in different parts of the world. The English who first came to America saw the crops that the Indians were growing and called the most important one corn. But back in England, corn still meant wheat, because wheat was the most important crop there, and

our corn was — and is — known as Indian corn, or maize.

You can grow the row of CORN on this page by adding the proper letters before or after the word to make a new word that fits the given description. Each dash stands for a missing letter.

This puzzle was first printed in the November, 1984 issue of *Faces* magazine. You can find the answers upside down below.

—CORN
—CORN
CORN—

CORN—
—CORN

—CORN

CORN—

—CORN

CORN—

—CORN
CORN—

CORN—

A great oak grows from it
To despise, or look down on
You often turn it when you
walk or ride
First cousin to a trumpet
A famous one-horned ani-
mal that does not exist
Our "founding fathers" wore
this hat
It projects from a building
roof
This animal "lives" in the
sky
An overflowing horn that
stands for plenty
It goes with salt
A pretty, blue summer
bloom
Laying it makes a building
official

Answers to Corn Puzzle: ACORN, SCORN, CORNER, CORNET, UNICORN, TRICORN, CORNICE, CAPRICORN, CORNUCOPIA, PEPPERCORN, CORNFLOWER, CORNERSTONE.

The Museum Library: Great Expeditions

Did you know that the Museum's library, located on the fourth floor, contains over 400,000 volumes? And, that it is open to the general public from 11:00 a.m. to 4:00 p.m. Monday through Friday?

In addition to books, the library contains pamphlets, reprints, periodicals, microfilm, original illustrations, film, and photographs. Visitors can do everything from looking up the classification of a little-known frog or beetle and reading about world culture, to acquiring beautiful color slides of plants, animals, and

people from around the world.

To help the library preserve and restore its vast and valuable collections, the Museum is offering a five-week-long, round-the-world luxury tour which will follow in the footsteps of our great explorers. A few of the many exciting adventures participants will have on this *Rediscover the Great Expedition II* tour will be to fly over animal preserves in Kenya in a hot air balloon, ride through the Nepalese jungles atop an elephant, and visit the people of

the Highlands of New Guinea.

The price for this expedition is \$28,000, and proceeds will help preserve library collections. For a brochure on the tour, please write: *Great Expeditions II Office*, Library, American Museum of Natural History, Central Park West and West 79th Street, New York, N.Y. 10024 or call (212) 595-3169.

For more information on the public services offered by the Museum library, write to the Museum address above or call (212) 873-1300, ext. 494.

Audubon Portfolio

After John James Audubon's death in 1851, his widow Lucy built a small shed on the family estate as a storage area for some 350 of the original engraved copper plates for Audubon's famous *Birds of America*. Her hope was to carry out her husband's wish to strike a second issue of the prints. But over the next 20 years her financial situation became too precarious to do so. She made several futile attempts to sell or give the engravings to national institutions. In 1870 she was finally forced to consign them to an auction house.

While recently a complete set of the *Birds of America* prints sold for over one million British pounds, a century ago no one was interested in the engraved copper plates themselves as art. In 1871 they were sold as scrap copper, to be melted down into bars.

Only about 75 of the original 435 plates are extant today. The Museum owns twelve of them. Last year six of these national heirlooms were returned to London (where they were originally engraved and printed) to be cleaned, restored, and printed for the first time in 150 years. The Museum joined forces with a prestigious British firm, Alecto Historical Editions, to create a new edition of the best six plates in commemoration of the bicentennial of Audubon's birth.

In the 19th century, Audubon's prints were struck with black ink and then hand colored. From his letters, it is evident that Audubon was often unhappy with the coloring work on the prints, which varied widely in uniformity. The experts at Alecto, hoping to realize exactly Audubon's original intentions, studied his watercolors and actual bird specimens and worked closely with ornithologists at the Museum.

For the new edition, Alecto



Snowy Owl

used a seventeenth-century Dutch process in which the master printer works colored inks directly into the engravings by hand, à la poupée (with a rag dabber). Thus, much of the color is already laid down when the print is struck, giving a richer and deeper result while maintaining finely engraved details. A watercolorist then adds the finishing color details to each individual print. This costly, time-consuming method assures the superior quality of the new edition.

The subjects of these six plates, among Audubon's finest, are the Wild Turkey, Male; the Female Turkey with Young; the Snowy Owl; the Mallard Duck; the Canada Goose; and the Great White Heron. Alecto has printed an edition of 125 for sale by subscription, at the price of \$30,000. The royalties will endow a fund for natural his-

tory at the Museum, in Audubon's name.

Two proofs of the new prints, the Wild Turkey and the Snowy Owl, are on display in John J. Audubon: *Science into Art*, an exhibition in the Naturemax Gallery. This exhibit details the process by which these new prints were executed. It includes some of Audubon's watercolors, oils, original letters, and other fascinating Audubon memorabilia. The exhibition will remain at the Museum through July 21.

Inquiries about subscriptions to the Portfolio should be addressed to:

AMNH/Alecto Audubon Portfolio
Subscription Secretary
American Museum of Natural History
Central Park West at 79th Street
New York, New York 10024

Discovery Tours



Share the finest in adventure travel programs with the American Museum of Natural History.

Discover the world's outstanding archeological sites, traditional cultures, architecture, crafts and performances with art historians, archeologists and anthropologists. Explore wildlife areas, coral reefs, volcanic islands and mountain ranges with expert naturalists and earth historians.

Please check off the Discovery Tour(s) in which you are most interested, so that we can send you additional information.

1985 Expeditions

- ☐ Alaska Wildlife Adventure June 28 to July 15
- ☐ Galapagos Islands Cruise July 22 to Aug. 8
- ☐ Aegean and Black Sea Odyssey Sept. 16 to Oct. 2
- ☐ Papua New Guinea Adventure Aug. 27 to Sept. 22
- ☐ E. African Safaris August 25 to Sept. 18 & Sept. 22 to Oct. 16
- ☐ Caribbean Christmas on the Sea Cloud Dec. 22 to Jan. 5

1986 Expeditions

- ☐ Archeology Tour To Mexico: January 6-30, 1986
- ☐ Egypt, The Nile And an Ancient Culture: February 9-March 1
- ☐ Voyage Through Melanesia — New Guinea to Fiji: February 16-March 6
- ☐ The Natural History of Hawaii: February 19-March 4
- ☐ Anthropology Tour To Morocco: March 21-April 5
- ☐ Oriental Passage — Singapore to Athens: April 4-May 7
- ☐ Trinidad and Tobago Wildlife Tour: April 14-23
- ☐ French Castles and Caves: May 2-15
- ☐ Art and Archeology Tour To Israel and Jordan: May 10-22
- ☐ Amazon Wildlife Adventure: June 21-28
- ☐ Alaska Wildlife Adventure: June 27-July 14
- ☐ Voyage of The Vikings — Oslo to Dublin: August 12-28
- ☐ Art and Archeology Tour To Tibet and China: August 16-September 13
- ☐ China — The Ancient Silk Route: September 17-October 10
- ☐ African Hinterlands — Zambia, Zimbabwe and Botswana Safaris: September 12-28 or September 26-October 12
- ☐ East African Safari: September 25-October 19
- ☐ The Classical Mediterranean Aboard Sea Cloud: October 10-26
- ☐ Caribbean Christmas Aboard Sea Cloud: December 22, 1986-January 5, 1987

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Detach this form and mail to: Discovery Tours, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Or call (212) 873-1440.

Members' Sunset Tours

Why is Gramercy Park Flat?

Wednesday, July 10 and Thursday, July 11
6:00 and 7:30 p.m.
\$5 and open only to Members

Once upon a time, the flat area that is now called Gramercy Park was an undulating landscape cut by a small stream valley. What happened and why?

Learn the answers when you join Sidney Horenstein of the Museum's Department of

Invertebrates for a walk around Gramercy Park. Mr. Horenstein will discuss the area's geological history. He will also point out the structures and building stones of various buildings, and discuss why brownstones sometimes fall apart.

As an added treat, Members will learn a few interesting bits and pieces about some of the trees and people of this very unusual New York neighborhood.

To register, please use the adjacent June Members' Programs Coupon.

Inanna



Celebrated storyteller Dione Wolkstein performs the Cycle of Inanna, the oldest written story known. As the story of this ancient Sumerian goddess unfolds, the audience learns of her girlhood, special gifts, passion, marriage, motherhood, and journey to and from the dark underworld. Geoffrey Gordon's music adds to the timeless quality of this story. Friday, June 7, 8:00 p.m., Koussmunn Theater. \$8.00 for Members; \$10.00 for non-members. Please call (212) 873-1327 for ticket availability.

Happenings at the Hayden

Sky Shows

Note: The Planetarium will be closed on June 25 and 26.

The Violent Universe. Through June 24. Black holes, exploding galaxies and the birth of the cosmos. This exciting program, narrated by the recorded voice of Vincent Price, takes you on a tour of our dynamic and fascinating universe, using an unprecedented array of special effects.

Hayden: The Golden Years. A special new 50th Anniversary Show. June 27 through November. Fifty years ago, the Hayden Planetarium opened its doors. Since then, over 25 million people have marvelled at the wonders of the night sky or taken trips into space in the Sky Theater. This special Sky Show looks

back at those five decades of history to examine our technological achievements, cultural progress, and changes over the years. The show also takes viewers into the future.

Sky Show admission for Participating, Donor and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and Sky Show times, please call (212) 873-8828.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings. 7:30 and 10:30 p.m.: Heavy Laser. Featuring a combination show of The

Police, Van Halen, The Who, and Rush.

9:00 p.m. Laser Floyd. With the music of Pink Floyd.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

School Programs

The Planetarium offers many programs for young children. For school information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.

June Members' Programs Coupon



Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total amount enclosed: \$ _____

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: **June Members' Programs**, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

The Cat that Walks Alone. Tuesday, June 25. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00.

Number of free tickets: _____
Number of tickets at \$3.00 each: _____
Amount enclosed for program: \$ _____

Gramercy Park Tour Wednesday, July 10 and Thursday, July 11. \$5.00 and open only to Members. Please indicate a first and second choice of tours.

Wed., July 10: _____ 6:00 p.m. _____ 7:30 p.m.
Thurs., July 11: _____ 6:00 p.m. _____ 7:30 p.m.

Number of tickets at \$5.00 each: _____
Amount enclosed for program: \$ _____

Please look over your coupon before mailing it to the Museum. Have you included your name and address? Does the total amount enclosed equal the sum of the amount enclosed for each program? Thank you for checking.

Natural Curiosity: Like a Moth to the Flame

The *Natural Curiosity* column is a recent newcomer to the *Rotunda*. It will appear whenever space permits, and as long as readers continue to mail in questions pertaining to any area of natural history.

While I won't be able to devote this amount of space to all questions received, those below called for a detailed response. They generated several lively conversations among myself and several Museum entomologists, each of whom ventured opinions, observations, and further questions.

My inquiries led me finally to Eric Quinter, lepidopterist. His research with *Noctuidae* and other nocturnal moths necessitates a great deal of collecting. He is a frequent visitor to the world of night-flying insects.

same relative position to the moth during its entire journey.

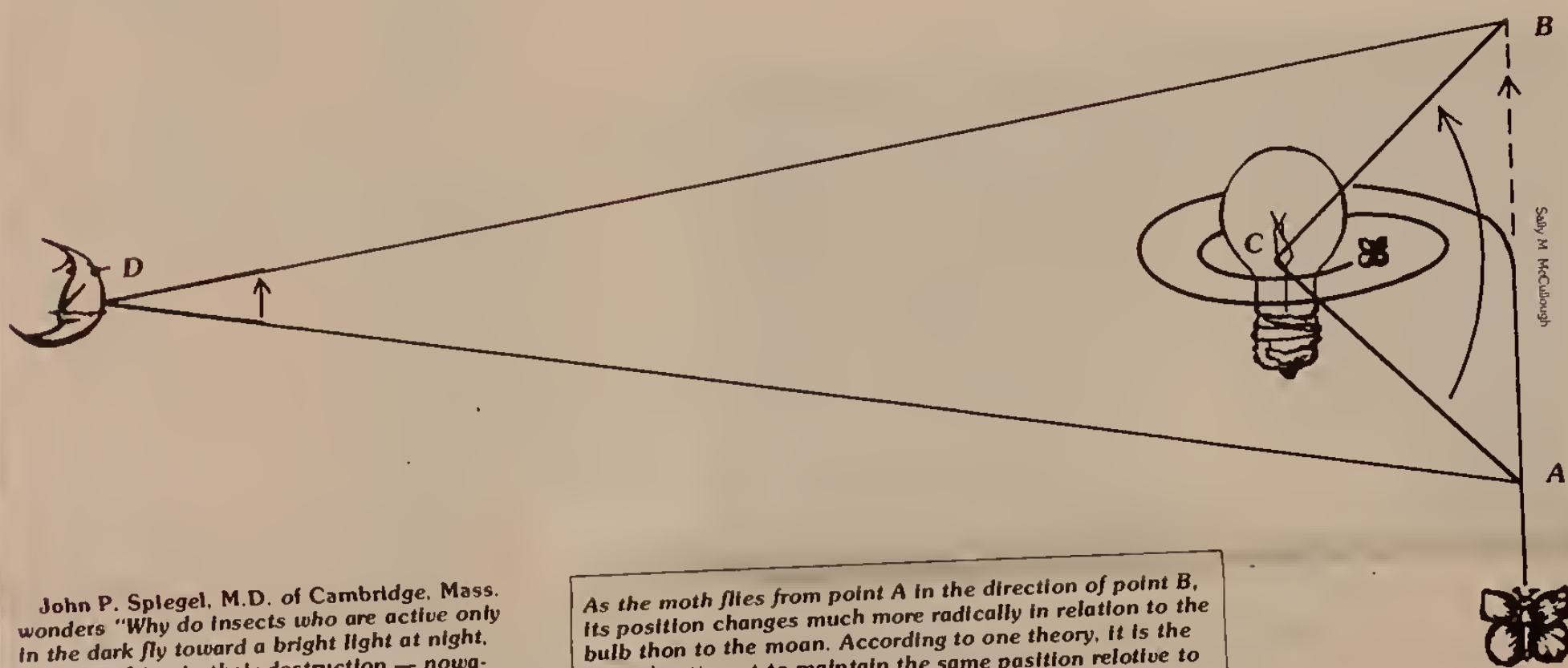
Now imagine our moth's reaction to the bright light bulb it uses as a "substitute moon." Since the bulb is only a few yards away, by the time the moth flies from point A to point B, the moth's position in relation to the bulb has changed drastically. In order for the moth to maintain a flight pattern keeping the bulb in the same position relative to itself, it must turn in toward the bulb. This is the beginning of the well-known spiral which eventually takes our misled insect all the way to the bulb itself.

Once very close to the bulb, the light is so bright that the insect is "fooled" into thinking it is daytime. Being a nocturnal creature, our moth may drop off to sleep, becoming an easy meal for a hungry bird

it is on the amount of available moonlight. Collecting is always relatively easier, all other things being equal, on a misty or foggy night. Quinter points out that added particles in the air on a misty night amplify vibrations. In a sense, these particles "create more noise" for the insects to hear or feel.

Readers have no doubt noticed that this column has still not answered Spiegel's original question. The truth is that the answer must await the future.

With the advent of the scanning electron microscope (S.E.M.), entomologists have found various specialized microscopic structures on the legs and antennae of insects which no one knew existed until recent times. The functions of these structures are still unknown. Could some of them be special receptors for vibrations?



John P. Spiegel, M.D. of Cambridge, Mass. wonders "Why do insects who are active only in the dark fly toward a bright light at night, often resulting in their destruction — nowadays often by man-made electrical devices? Even before people came along with their technology I imagine that night flying phototactic creatures might have flown into natural fires, resulting in their death. What is the survival value of phototaxis in these nocturnal insects?"

According to Quinter there is as of yet no known theory which explains the survival value of phototaxis in nocturnal insects. There are, however, conflicting theories of how and why insects are affected by light.

Due to the work of the famous entomologist von Frisch and others, it is now fairly well known that honeybees, which are diurnal insects, navigate by the sun. They use their ability to detect the sun's rays, even when the sun is not visible, to "remember" and to communicate to other bees where certain flowers can be found in relation to the sun's position.

Many entomologists have applied this and similar information to nocturnal insects, theorizing that nocturnal insects instinctively navigate by moonlight.

When an electric bulb appears on the scene, the insect experiences a confusion which may lead to its untimely demise in the following manner:

To simplify things a bit for the sake of description, let's take a hypothetical moth and put it in a hypothetical situation.

Our moth is flying on a moonlit night, searching for food, or for a mate. The insect's reflex behavior keeps it traveling in a straight path in relation to this distant light, unless it is diverted by another stimulus. It is aware on this occasion that during its flight the moon is always to the left. To return to its original position, it returns via this same path.

Now, enter the technological "wonders" of humankind. Our moth sees a nearby bulb. Instinctively, it tries to maintain a straight path in relation to the artificial light. This is the part of our theoretical story where it helps to look at the diagram.

The moon more than 200,000 miles away from the earth, so even if the distance from point A to point B is a few miles, the moon remains in the

As the moth flies from point A in the direction of point B, its position changes much more radically in relation to the bulb than to the moon. According to one theory, it is the insect's attempt to maintain the same position relative to the bulb which leads it to the bulb itself. Note the difference in size between angle ACB and angle ADB. If the diagram could be drawn to scale on a giant page, the moon would have to be placed much further away from line AB, and angle ADB would be miniscule.

at daybreak. This may explain why certain species of nocturnal insects are much rarer in areas where there is a great deal of artificial light than they are in areas where there are stretches of uninterrupted darkness.

This theory seems quite logical, and it appears in various forms in entomology textbooks — but Quinter is not convinced of its validity. He makes the point that honeybees have a good reason to navigate, whereas nocturnal insects do not. Honeybees have a home to which they return, a "society" to which they contribute. If you are a nocturnal moth, however, you "don't need to return anywhere in particular. Nothing is to be gained by either knowing or caring where you're going. To the best of our current knowledge, the flight of nocturnal insects is random. Therefore, there is no logical reason why they would use the moon or any other light by which to navigate."

In addition, there is a good deal of evidence that nocturnal insects are attracted to wavelengths other than visible light. One entomologist who worked as a radar technician during the second World War noted that in total darkness nocturnal insects were attracted to radar apparatus. When collecting insects, Quinter often uses ultraviolet light traps, which work quite successfully. Ultraviolet light has a shorter wavelength than visible light. Even microwave ovens on back porches have been reported to attract insects! Microwaves are also shorter than light waves.

Mr. Quinter hypothesizes that nocturnal insects react primarily not to what they see with their eyes, but to what they hear with their ears (those that have them) or "feel" with other specialized organs. He has found that when he uses ultraviolet insect traps, success at collecting nocturnal insects is far more dependent on temperature and humidity than

Spiegel's area of inquiry leads to the kind of temporary impasse that makes science the exciting adventure it is. The topic elicits far more questions than answers. There doesn't seem to be any survival value in insects' attraction to light and other waves. If anything, in a world where insects must co-exist with humans, there is a direct disadvantage to this attraction.

It's important to remember, however, that insects didn't evolve with human beings around. At some point in insect evolution, was it important for them to detect vibrations in the atmosphere? In addition to vision and smell, are vibrational cues an important aspect of an insect's life in ways we do not yet understand? Might certain strong nearby vibrations overflow an insect's senses so that it becomes "blind" to all other stimuli, able to fly only in the direction of what it can sense? Could it be that the ability to detect vibration was never an advantage to insects, but the trait was not rooted out by natural selection because for millions of years, neither was it a disadvantage?

Questions like these, while they may remain unanswered for some time to come, will lead to a greater understanding of some of the most fascinating and plentiful animals on Earth.

— R.Q. Leibowitz

Questions for this column may be addressed to Natural Curiosity, Membership Office, American Museum of Natural History, 79th Street at Central Park West, New York, N.Y. 10024.

Museum Notes



This previously unpublished original watercolor of an American martin was completed by John James Audubon for The Viviparous Quadrupeds of North America. It is now on display along with other original paintings of mammals and birds, documents and other memorabilia related to Audubon's life and works in John James Audubon: Science into Art, in the Naturemax Gallery.

Special Exhibitions

Captured Motion: Skeletal Studies of S. Harmsted Chubb. Through June 16. In the hands of S. Harmsted Chubb, a pioneer in the study of how animals move, skeletons became works of scientific art. A selection of these skeletons is exhibited with examples of the work of other scientists active in this study at the turn of the century. Gallery 1.

John James Audubon: Science into Art. Through July 21. This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth. Naturemax Gallery. Page 4.

Maya: Treasures of an Ancient Civilization. Through July 28. This temporary exhibition from the Albuquerque Museum includes stone reliefs, pottery, jade and other works of art. Gallery 3.

Mountain of the Mist. Through September 2. A photo exhibition about the Neblina expedition in Venezuela. Akeley Gallery.

Programs and Tours

Museum Highlights
Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the first-floor information desk. If you wish to join a free tour, please ask at the information desks for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of

New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, 2:00 p.m. to 4:30 p.m., weekends 1:00 p.m. to 4:30 p.m. Closed Mondays and holidays all year. Effective July 1 through August, the Center is closed on Sundays as well.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

Naturemax Information

On New York's largest movie screen — 4 stories tall and 60 feet wide — the Naturemax Theater continues to dazzle audiences with two all-time favorite IMAX films: *To Fly!*, a breathtaking view of the history of flight from hot-air balloons through rockets into space; and *Living Planet*, an ecological tour of some of the earth's most awesome sights.

The box office is located in the 77th St. lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between

Central Park West and Columbus Avenue. Rates are \$6.50 for cars and \$7.50 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings. **Effective July 1, rates will increase to \$7.00 for cars and \$8.00 for buses.**

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Terrace Cafe. Open daily, May 15, through early September from 11:30 a.m. to 4:30 p.m. Located on the West 77th St. Ellipse.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Looking Ahead

Facelift Update

As of press time, construction is well underway at the Roosevelt entrance on Central Park West. This work is part of an ongoing program to maintain and refurbish Museum facilities.

Both levels of the Roosevelt entrance are currently closed, and visitors are advised to enter the Museum at 77th Street. Visitors who wish to enter the Museum on Central Park West can use the entrance which has been constructed several yards north of the regular one. This entrance leads into the first-floor Biology of Birds hall, through which the rest of the Museum is easily accessible.

Only the Roosevelt entrances are affected by construction; all other Museum entrances remain open

Margaret Mead Film Festival

September 9, 10, 11 and 12

September marks the ninth anniversary of the Margaret Mead Film Festival. Once again, this famed festival will bring together some forty documentary films reflecting the diversity of the world's cultures. Filmmakers and anthropologists from other countries will join with Museum staff members to introduce the works, many of which will be having their New York premieres.

While the final selection process is still underway, some of our choices have been made. These include:

Diary of a Masai Village: Two segments of an extraordinary work by a British filmmaker.

The Good Fight: The Abraham Lincoln Brigade and the Spanish Civil War. Through the eyes of those who were part of the Abraham Lincoln Brigade and the struggle against fascism in Spain, we learn about the meaning of this historic period.

The Memory of the Camps: Never-before-released documentation of eleven of the concentration camps liberated by the Allies in 1945.

Look for the complete Margaret Mead Film Festival program in the September issue of *Rotunda*.



This wooden elephant mask is from the Western Grassfields of Ball, Cameroon. Museum visitors can view it in The Art of Cameroon.

∞ Sun

Mon

Tue

Wed

Thu

Fri

Sat

1985 American Museum of Natural History



Moon is at perigee

2 1:00 - 4:30 p.m. China Month. Golden Dragon Dance with Ho Nan Shau Lin Association. Chinese Music and Instruments with Tsuan-nien Chang. Chinese Great & Little Traditions with Marsha Wagner. Leonhardt People Center. Free.

Full Moon.

9 1:00 - 4:30 p.m. China Month. Tai Chi with Yung Yung Tsui and Dancers. Women in China with Sue Gronewald. Leonhardt People Center. Free.
2:00 p.m. N.Y. Shell Club. Room 419. Free

10 Last Quarter (half moon)

11 5:30 - 8:30 p.m. Nooks and Crannies of the Bay. Hudson River Cruise with Sidney Horenstein. Reservations required. Page 2.

12 7:30 p.m. N.Y. Mineral Club. Leonhardt People Center. Free.

Moon is at apogee



New Moon

16 1:00 - 4:30 p.m. China Month. Classical and Modern Chinese Music with the Chinese Music Ensemble of N.Y. Peking Opera Performance with Kuang-Yu Fong. Leonhardt People Center. Free.

17

18

23 1:00 - 4:30 p.m. China Month. Chinese Women's Dances with Gennevieve Lam, Jai-neng Mao and Margaret Yuen. Chinese Bamboo Flute — The Di, with Tim Liu. Leonhardt People Center. Free.

24

30 1:00 - 4:30 p.m. China Month. Chinese Women's Dances. Chinese Music — Erhu & Zheng. Peking Opera Slide Talk. Leonhardt People Center. Free.

25 7:30 p.m. The Cat that Walks Alone. Members' Program. Tickets required. Page 1.
8:00 p.m. Met Grotto: Nat'l Speleological Society. Room 129. Free.

First Quarter (half moon)

26 6:30 p.m. Lapidary & Gem Society. Leonhardt People Center. Free.

27 Hayden: The Golden Years, a special 50th Anniversary Sky Show opens today at the Hayden Planetarium. Page 5.

28 Members of the Art of China and Tibet Discovery Tour arrive in Lhasa, Tibet. For information on future Discovery Tours call (212) 873-1440 or see page 4.

29 1:00 - 4:30 p.m. China Month. Chinese Women's Dances. Chinese Music — Erhu & Zheng. Peking Opera Slide Talk. Leonhardt People Center. Free.

Members of the Alaska Wildlife Adventure arrive in Glacier Bay. For information on future Discovery Tours call (212) 873-1440 or see page 4.

6

5 5:30 p.m. N.Y. Conservation Association. Kaufmann Theater. Free.
7:00 p.m. Eyes, Body and Hands. A Program for the Hearing Impaired. Linder Theater. Free. Page 2

4 5:30 - 8:30 p.m. Waters of New York. Hudson River Cruise with Sidney Horenstein. Reservations required. Page 2.

7 8:00 p.m. Inanna: Queen of Heaven and Earth. Members' Evening Program. Kaufmann Theater. Reservations required. Page 5.

8 1:00 - 4:30 p.m. China Month. Tai Chi with Yung Yung Tsui and Dancers. Women in China with Sue Gronewald. Leonhardt People Center. Free.

14

15 1:00 - 4:30 p.m. China Month. Classical and Modern Chinese Music with the Chinese Music Ensemble of N.Y. Peking Opera Performance with Kuang-Yu Fong. Leonhardt People Center. Free.

21 Summer Solstice (Summer begins at 5:44 a.m.)

22 1:00 - 4:30 p.m. China Month. Chinese Women's Dances with Gennevieve Lam, Jai-neng Mao, and Margaret Yuen. Chinese Bamboo Flute — the Di, with Tim Liu. Leonhardt People Center. Free.

Members of the Alaska Wildlife Adventure arrive in Glacier Bay. For information on future Discovery Tours call (212) 873-1440 or see page 4.

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 10, No. 7 July/August 1985



Wood male mask from the Western Grassfields of Cameroon.

The Art of Cameroon

July 15 through October 15 in Gallery 1

In 1966 a sacred African sculpture now known as Afo-A-Kom disappeared from the Palace of Laikom in the Kom Kingdom of Cameroon. This large, beaded effigy was a royal heirloom and symbol of fertility and good fortune to the people of Kom, and its loss was deeply felt. Seven years later, it was found in the United States and promptly returned.

As a gesture of good will and to further international cultural exchange, the Laikom Palace has lent Afo-A-Kom as well as its two female companion figures, to the traveling exhibition *The Art of Cameroon*. The exhibition will also include ceremonial masks, jewelry, animal carvings, and

many other items that reflect the rich culture of this West African nation.

Located just north of the Equator, Cameroon is a nation of striking geographical and cultural variety. Verdant tropical rainforests in the south give way to semi-arid grasslands and towering mountains further north. Each region possesses its own distinctive patterns of culture.

While *The Art of Cameroon* will include art objects from each region, the exhibition will be largely devoted to the art of the Grassfields, a high savanna region with a complex, hierarchical social order. Carved images of royal ancestors and objects of regalia such as headdresses and ceremonial

pipes document dynastic succession. Perhaps most significant among the Grassfields items are the large, royal stools, often carved with elaborate icons, that symbolize a Fon's (king's) high secular and spiritual status.

The Art of Cameroon was organized by the Smithsonian Institution Traveling Exhibition Service (SITES) with a grant from Mobil, and is curated by Tamara Northern, Dartmouth College. Several of the articles are on loan from Grassfields palaces by permission of the local Fons and the government of Cameroon. The majority of the objects are on loan from renowned public and private collections throughout Europe and the United States.

Happy 50th Anniversary

More than twenty-five million people have enjoyed the wonders of the Hayden Planetarium's slarry dome. This special Members' program pays tribute to the Planetarium with a double-feature sky show, and more. **Page 3**

Mice and a Squirrel

An abandoned baby squirrel reaches adulthood after being "adopted" by a mother cat, and several different mice demonstrate the joys and hazards of a mouse's world in two films for Members of all ages. **Page 3**

Food Gifts of the Incas

Pottery, ethnobotany, and culinary delights await Members as Drs. Helen and Robert Russell share their knowledge and experiences of Peru. **Page 6**

Sea Songs

Sailors of bygone days were a hardy breed. Their songs are still sung. Join Tom Goux and Jacek Sulanowski for an evening of sea chanties and other songs of sailors' work and leisure. **Page 2**

New Naturemax Film

The Dream Is Alive, the stunning new IMAX film which offers an insider's view of America's Space Shuttle program, opens in the Naturemax Theater this summer. For show times, call (212) 496-0900

Members' Memo Inevitable Changes

Effective this July, Participating Membership fees will increase from \$35 to \$40, and Donor Membership fees will go up from \$60 to \$65. We have tried to keep these increases as modest as possible. We are pleased to inform all of our current Members that they will have at least one more opportunity to renew at the old Membership rates. Information about this special offer will appear with your renewal notices and in a special advance renewal letter to be mailed this summer.

While inflation has slowed in recent times, prices have nevertheless continued to rise. The Museum, like all institutions, is affected by this trend. Museum salaries, and maintenance and operating costs have all crept up. The costs of mailing *Rotunda* and *Natural History*, like your own postage costs, have increased as well. Perhaps, most importantly, the Museum needs increased funds if it is to continue to grow and evolve to meet the needs of its many audiences: scientists, scholars, school groups, Members, and the general public.

Evidence of the Museum's vitality and growth can be seen in almost every area of the Museum. Just below my office, curators have begun to place Nazca pottery in one of the first display cases in the Hall of South American Peo-

ples, scheduled to open in about two years. From the balcony of the *Hall of Pacific Peoples*, Museum visitors can catch a glimpse of part of the Hall, including the replication of the tallest Peruvian statue known.

Two flights above me, the Department of Anthropology is getting ready to move all our African materials into a new collections area with state of the art storage cases and climate control. While storage areas such as this are not visible to Museum visitors, they are absolutely vital if the Museum is to preserve our collections for the enlightenment of future generations. Scientists and researchers in other departments are continuing to computerize our collections so they can be more accessible both to our own staff members and to visiting researchers.

The Edith C. Blum Lecture Hall is the most recent addition to the Dana Education Wing. This room, as well as a similar space to be built above it, will provide us with two new multi-purpose rooms to enhance our programming capabilities. One of our first programs to make use of this new area will be *Food Gifts of the Incas* (page 6).

This summer, the Museum will also begin work on a new *Hall of Human Biology and Evolution*. The Hall will be

constructed where the present Hall of Human Biology now stands. It will place a greater emphasis on human evolution than did the old hall, and will include materials and casts from the *Ancestors* exhibition.

Changes are taking place not only in the spaces within the Museum's walls, but in the walls themselves! Anybody entering the Museum via Central Park West will notice that the front facade and plaza are being reconstructed and reinforced. A new temporary entrance leads into the newly renovated Biology of Birds Hall.

The Museum's continuing vitality can also be seen in every issue of *Rotunda*. You may have noticed that we have expanded to eleven issues this year in order to include all the programs the Museum now offers. The July/August issue you are reading is the only double issue we now have. The sixteen-page September issue of *Rotunda* will include the *Margaret Mead Film Festival* schedule. It will also list and describe the Fall courses.

We who work here are very proud of the exciting changes taking place at our Museum. We hope you share our pride, because your support helps to make it all possible.

Henry H. Schulson

The Continuing Saga of Cooter #1

Readers of the January, 1985 issue of *Rotunda* met Cooter #1, a large, aquatic turtle who was found walking slowly through Central Park last autumn. Mr. Michael Klemens of the Museum's Department of Herpetology was called upon to determine the sex (male) and species (*Suwonee cooter*) of the turtle, and to mark him. Since the *Suwonee cooter* is endemic only to a small area of Florida, those of us who had been privileged to meet Cooter #1 were concerned about his prospects of surviving a New York City winter. Here is some good news for Cooter fans:

It was April 13, 1985, at 10:15 on the morning of a partly sunny day. The water of Belvedere Lake was very clear. Urban Park Ranger Leslie Pansarasa and Belvedere Castle staff member Ivan

Rios stood together at the back door of the Castle, looking out over Belvedere Lake.

Suddenly, their attention was drawn to a V-shaped ripple on the water's surface. Looking more closely, they saw a large turtle with what seemed to be a big "1" on its back, paddling along. The turtle swam slowly into the reeds. Both Pansarasa and Rios are almost certain that they were the fortunate viewers of Cooter #1.

"If only we could be absolutely sure that Cooter #1 has survived the winter," I sighed to Pansarasa. She gave me her assurance that Central Park staff members would continue throughout the season to "look longingly down at the lake, trying to identify our turtles."

— R.Q. Leibowitz

Songs of the Sea

Tuesday, August 6, 7:30 p.m. Main Auditorium
Free and open only to Members

The sailors who worked the tall ships in the days before steam power had to be a hearty breed. Theirs was a life of long hours of physical labor, and often danger, hoisting sails and anchor on mid-nineteenth-century whalers and schooners. The hard work on these vessels often demanded precisely coordinated movements, and the spirited rhythm and meter of the chantey helped the crew to haul in unison.

The songs of sailors and the sea will be celebrated in a concert by performers Tom Goux and Jacek Sulanowski, who have spent the last decade researching chanties, foc'sles, and ballads from the heyday of the great sailing ships. Their exploration of these traditional folk music forms has yielded shore and pub tunes, ocean-going songs, and songs of work and leisure from New England, Nova Scotia, Ireland, and many other locales. Instruments such as the Celtic harp, banjo, zither, and dulcimer lend authenticity to the songs that express the loves, hopes, longings, work and play of the

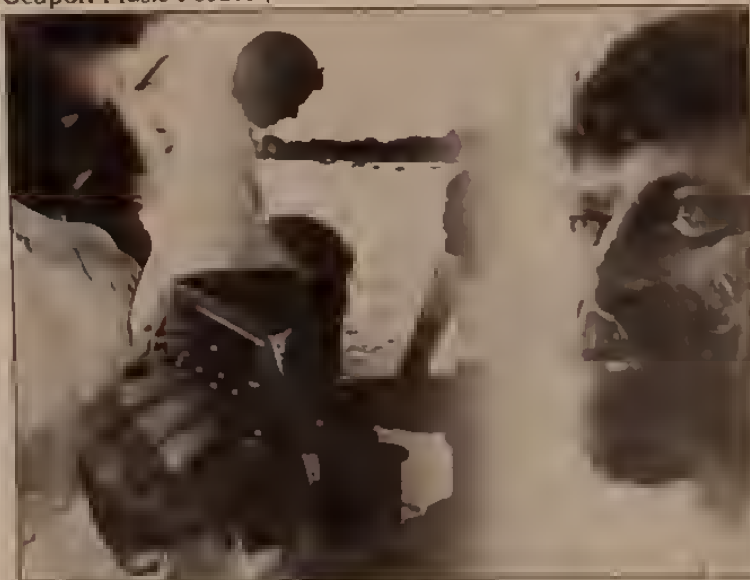
nineteenth-century sailor.

Tom Goux, songwriter and musician, teaches music and movement to young students on Cape Cod. Jacek Sulanowski is a researcher at the Woods Hole Oceanographic Institute and teaches geology at Bridgewater State College. They have performed together during the Tall Ships bicentennial visit to New York, on the deck of the U.S.S. Constitution, at the Mystic Seaport Music Festival, and at

festivals in Baltimore Harbor. "Born of Another Time," an album of their music from the age of sail, was released in 1982 by Folkways Records.

Prior to the performance, Members are invited to sip coffee and tea, and to taste rum, compliments of *Natural History* and Mount Gay Rum.

To register for Songs of the Sea, please use the July / August Members' Programs Coupon on page 3.



Tom Goux (l) and Jacek Sulanowski (r).

ROTUNDA

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July/August Members' Programs Coupon



Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total amount enclosed: \$ _____

Please make check (if needed) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: **July/August Members' Programs**, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Members' Planetarium Reception. Thursday, July 25. \$2.75 for adults, \$1.50 for children, and open only to Members. Please indicate a first and second choice of times (if possible).

_____ 6:00 p.m. _____ 7:30 p.m.

Number of children's tickets at \$1.50 each: _____
Number of adults' tickets at \$2.75 each: _____
Amount enclosed for program: \$ _____

Food Gifts of the Incas. Tuesday, July 30. \$5.00 and open only to Members. Please indicate a first and second choice of times (if possible).

_____ 5:30 p.m. _____ 8:30 p.m.

Number of tickets at \$5 each: _____
Amount enclosed for program: \$ _____

Songs of the Sea. Tuesday, August 6. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00.

Number of free tickets: _____
Number of tickets at \$3.00 each: _____
Amount enclosed for program: \$ _____

Delightful Animals. Tuesday, August 13. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00. Please indicate your time preference:

_____ 11:00 a.m. _____ 7:30 p.m.

Number of free tickets: _____
Number of tickets at \$3.00 each: _____
Amount enclosed for program: \$ _____

Please look over your coupon before mailing it to the Museum. Have you included your name and address? Does the total amount enclosed equal the sum of the amount enclosed for each program? Thank you for checking.

Special Members' Viewing

Halley's and the Hayden

Thursday, July 25, 6:00 p.m. and 7:30 p.m.

\$2.75 for adults, \$1.50 for children, and open only to Members

During the past half-century more than 25 million people, from school children to astronauts, have enjoyed the wonders of the Hayden Planetarium's stary dome. In July, Members are invited to attend a private viewing of this world-famous institution's Golden Anniversary show, and to take a look back at the early years of the Hayden and how our perceptions of our universe have changed in just five short decades.

Hayden: The Golden Years will take Members on a journey from a time when astronomers used only their eyes to gaze up at the skies from

Earth, to the present, when people and their telescopes travel out into space and even visit other worlds. You'll also get a speculative glimpse into where future explorations might lead as the Planetarium begins its second fifty years.

The program will also include a look at the Sky Theater's new feature, *Holley's Comet: Once in a Lifetime*. Later this year, the most famous comet of all time will return to our skies. This sky show explores the nature of comets and explains how and why they offer vital clues that help us better understand the formation and evolution of the

solar system.

As a special treat for Members, there will be piano music and a cash bar in the Guggenheim Space Theater. Members can sit beneath the circling planets, surrounded by space images, and be serenaded by musical selections along astronomical themes, such as the "Halley's Comet Rag." Weather permitting, telescopes will be set up outside the Planetarium for viewing the night sky.

Please use the adjacent July/August Members' Programs Coupon to register for the special Members' Viewing of *Halley's and the Hayden*.

Mountain of the Mist

in the Akeley Gallery through September 2

Its highest peak rises 9,000 feet above the remote rainforests of Southern Venezuela. Cerro de la Neblina, also called "Mountain of the Mist," is one of the world's most fascinating places.

Neblina is a tepui, or table mountain — a remnant of a once-extensive plateau of softer stone that has been eroded over the last 100 million years. A tepui surrounded by rainforest is like an island surrounded by water. The species that live there are isolated from even their closest living relatives.

During 1984, a group of

Museum scientists joined scientists from several other institutions in a multi-national expedition undertaken to study the biota at Neblina.

They lived in rainforest camps, traveled by dugout canoe, and reached Neblina's high plateau by helicopter. Many of the plants they found in this environment were previously unknown to scientists.

In *Mountain of the Mist*, the Museum's newest photographic exhibition, Museum visitors can see for themselves some of the rare and unusual plant and animal life forms that inhabit this mountain fortress. Color photographs rang-

ing in size from 14 by 17 inches to 30 by 40 inches record the scientists' findings and experiences at Neblina.

The exhibition's 40 photographs include giant snakes, unusual frogs and lizards, exotic jungle birds, numerous insects, and a few of the many plants found in the area. At the entrance to the exhibit, Museum visitors can view a 16-foot-long panorama of the region.

Mountain of the Mist was made possible by the generous support of the Arthur Ross Foundation. It will remain open in the Akeley Gallery through September 2.

Delightful Animals

A Family Film Program

Tuesday, August 13, 11:00 a.m., Kaufmann Theater

7:30 p.m., Main Auditorium Free and open only to Members

Several mammalian species will warm everyone's hearts in this family program featuring the following films:

Squirrel on My Shoulder. While strolling through the countryside, naturalist John Paling finds an abandoned baby gray squirrel in its nest. He takes the tiny animal home, where his cat adopts it as one of her litter. Soon, the differences between the baby squirrel and its feline "siblings" become apparent. Domestic chaos ensues as the delightful young rodent

explores its squirrel nature in an indoor environment. Finally, with mixed feelings, Paling returns his charge to the wild, wondering if he will ever see the little squirrel again. The film's ending is a happy one.

The Mouse's Tale. Dormice live only in wooded areas, while house mice depend on human beings for survival. For both species, life has its hazards. This film explores the habitats and behavior of these and other mice as they go about their lives in Wiltshire,

England. Members will watch as a young house mouse inspects a trap for the first time, witness the birth of a dormouse in its woodland nest, and see a country kitchen transformed into mouse heaven at night.

Both films were produced by the British Broadcasting Corporation. *The Mouse's Tale* is narrated by David Attenborough.

To register for *Delightful Animals*, please use the adjacent July/August Members' Programs Coupon.

"If you Can Draw a Cow . . ."

Charles R. Knight Recreates Prehistory

Charles Robert Knight (1874-1953) was five years old when his father took him on his first visit to the American Museum of Natural History. In 1879 the Museum was not the giant institution it is today; it was only a single red brick building in the middle of Manhattan Square. But to little Charles it was a treasure house. The long tiled halls which held an assortment of glassy-eyed specimens from the Taxidermy Department captured the attention and enthralled the imagination of this boy, who was later to become an artist famous for his recreations of the paleontological past.

In his unpublished autobiography Charles Knight described a Museum exhibit that he remembered as a child:

"I particularly remember one striking group of an Arab camel rider being attacked by a lion. Perhaps other men my age will recall this dramatic piece which, for some reason I never clearly understood, was given in later years to the Carnegie Museum in Pittsburgh. I always regretted its going, as it certainly was a thrilling bit of artistic taxidermy, and only an artist could have done it. The man, of course, was wax — but his expression as he sat astride the camel's neck, to escape the claws of the big cat, was well worth seeing. A dead lioness with a little red paint for blood lay at the feet of the camel, and this artificial gore was, I fear, the cause of our group being sent away, as it was too sensational for a staid institution like our Museum."¹

The little boy who walked through the Museum that day did not yet know that through an amazing set of circumstances the Museum was to launch him on a successful career as a paleontological artist and become his professional home for forty years. His illustrations were to embellish the mammal and dinosaur halls and the Hall of the Age of Man for years to come, and his conceptions of what prehistoric animals and landscapes looked like would be shared with and appreciated by millions of people.

Charles Knight started out in the professional world as a stained glass designer for a church-decorating firm, where he was in charge of drawing all the animals and plants to be incorporated into the designs. He then went on to do illustrations for various publications on a freelance basis. Most of his illustrations were of animals. Two of the most memorable articles he illustrated were on poisonous snakes and on the behind-the-scenes reality of circus life.

In his work at the stained-glass firm, and as a freelance illustrator, Knight realized the importance of studying animals from life, and visited the Central Park Zoo regularly. He also recognized the value of learning about the musculature and skeletal structures of his subjects, and with this in mind he came to the Museum's Taxidermy Department for further study.

The name of Charles R. Knight soon became well known to staff members at the Museum. Impressed by his desire to learn more about the animals he drew, scientists offered Knight continued advice and encouragement.

A day in 1894 became a turning point in Knight's life and work. John Rowley, the head taxidermist and one of Knight's closest friends came to him and said "There was a man named Dr. Wortman here yesterday, from upstairs in the Fossil Department, and he was looking for someone who might make him a drawing of a prehistoric mammal. I said I believed you could do it, so why don't you go up and see him?"² These fateful words, coupled with Knight's talent and knowledge, would launch him on a career at the Museum which would occupy much of his time for the next forty years.

Knight went upstairs to the Fossil Department to meet Dr. Wortman, a specialist in fossil teeth. Dr.

Wortman asked Knight if he could produce a restoration of a giant piglike animal called *Elotherium*. Knight immediately got to work studying *Elotherium*'s skeletal remains. Knowing something of modern-day pigs, Knight could make competent, educated guesses about the ancient animal's musculature and attitudes.

In his later years, Knight recalled to his beloved granddaughter, Rhoda Kalt, his memories of this first monumental task.

"I studied the *Elotherium* skeleton carefully, ask-

ing myself all kinds of questions. What sort of muscle development would it have had? How would it have moved? How would it have looked? Naturally, I questioned the scientists, too.



To best study an animal's form and capture that form on a flat surface, Knight would often sculpt an animal before painting it.

ing myself all kinds of questions. What sort of muscle development would it have had? How would it have moved? How would it have looked? Naturally, I questioned the scientists, too.

But I was determined that this would be more than a scientifically accurate portrait, still and unconvincing. I hoped to bring the *Elotherium* to life and show him as he really was in those remote ages when he roamed the earth.

I sat for hours with my eyes closed, remembering everything I knew about animals, and gradually I began to see in my imagination an *Elotherium* just as alive as your box terrier."³

Dr. Wortman was delighted with Knight's finished restoration of the *Elotherium* and was soon giving the artist more assignments. The painting still hangs in the Museum's Late Mammals Hall.

In 1896 Knight met Professor Henry Fairfield Osborn, who became one of the most important people in his life at the Museum. Professor Osborn was one of the greatest minds in the field of paleontology, and the founder of the Vertebrate Paleontology Department. In addition to being a scientist, Osborn also had a great appreciation for art.

Needless to say, Osborn and Knight got on famously. Osborn promptly acknowledged Knight's many talents, and made the young artist his protégé.

When Osborn first joined the Museum its fossil collection was meager and what there was of it was seen only by staff members. Wishing to make the

fossils available to the public, Osborn dreamed of creating paleontological exhibits which were both educational and exciting to view.

Around the same time, Knight met Dr. William D. Matthew, a scientist from Canada and a new member of the Museum staff. For many years Matthew was Knight's chief consultant and advisor on matters of animal pose and bone structure.

The three men were soon collaborating to fulfill Osborn's dreams. Osborn made arrangements for the Museum to acquire more vertebrate fossil specimens, and the noise made by scrapers, mallets, and drills could soon be heard throughout the new exhibit halls.

Osborn, Knight and Matthew wanted to mount the skeletons in life-like poses — a revolutionary concept in their time. Not surprisingly, they received opposition from staff members who thought that fossil specimens were for scientific study, not for the edification of the public. But because it was felt that the innovations this trio suggested would lead to heightened public interest in the Museum, the opposing staff members were forced to acquiesce.

To achieve the remarkable realism shown even in his earliest restorations, Knight spent hours studying and sketching the bones of the extinct creatures. But an accurate physical restoration of the animal's skeleton was only part of what he wanted to achieve. He wanted to infuse this restoration with life — and to do this he continually returned to his study of present-day animal physiology and psychology. Visiting the Central Park Zoo became more important to the artist than ever before. He claimed that "If you can paint a cow realistically, you can paint a mastodon."⁴

Once Knight conceived what a prehistoric creature might have looked like, he would make a miniature sculpture of it. Such sculptures helped him see how light fell on the figures, and what shadows they cast. Having three-dimensional models to paint from made Knight's work even more realistic.

Knight was said to be a perfectionist in his work. His granddaughter remembers that "Frequently he devoted several hours a day just to retouching a canvas or a difficult drawing. An entire afternoon would pass and Toppy (Knight) would still be painting one small area."⁵

Through the efforts of Osborn, Knight and Matthew, a new public awareness and interest in prehistoric life emerged. Visitors flocked to the paleontological halls to see the newly acquired skeletons in exciting and realistic poses, and to see the life restorations by Knight. A survey conducted some years later by the Department of Vertebrate Paleontology found that the fossil exhibits that were most frequently visited and most meaningful to the public were those which included Knight's work.

From 1901 through 1911, Knight produced an impressive set of paintings for the Museum, under the direction of Osborn and paleontologist William Berryman Scott. By the mid teens of the twentieth century, his illustrations appeared in numerous books and periodicals, making him well known to both scientist and layperson.

Knight's work now could also be seen at various locations aside from the Museum. The New York

and reindeer with a companion picture of a mastodon and a bison.

The subject of the succeeding murals was prehistoric man. Both Knight and Osborn had researched this topic, but they came to different conclusions about the appearance of early people, and they clashed over such matters as clothing or the lack thereof. The artist thought it would be more true to life for the cave people to remain naked, but the paleontologist insisted that, if for no other reason than modesty, they be inoffensively draped in animal skins.

In spite of this and other disputes, Knight triumphantly completed the series of thirteen murals in 1923. Their beauty and magnitude increased Knight's prestige and fame, leading to commissions from other major institutions.

In 1926 Knight was contacted by the Field Museum of Natural History in Chicago to create a series of twenty-eight murals to enclose the new fossil hall. Each of the murals was to depict the development of life on Earth, starting with Earth's earliest origins and then moving through the ages of amphibians, reptiles, mammals, and finally, humans. This ambitious project took Knight four years of

He was also an amateur veterinarian, tending to the sick or injured animals which neighbors brought him.

When in New York, Knight would frequently visit the Museum with Rhoda. Here he would "talk shop" with the artists and help them out in any way he could.

Rhoda remembers one special day when they visited the Taxidermy Department. They looked in a huge freezer, where they saw a frozen baby mammoth. She recalls that "He was fascinated by the baby trunk, the leg, the foot with its tiny toenails and a small amount of reddish hair. The idea of an animal dying so young depressed him."⁷

On April 15, 1953, Charles R. Knight died at the Polyclinic Hospital in Manhattan. The last words he spoke to his daughter Lucy were "Don't let anything happen to my drawings."⁸

In his lifetime Charles R. Knight created approximately 800 drawings, 150 oil paintings, and numerous sculptures. His work has been exhibited in dozens of institutions throughout the world, and he has written and illustrated four books on prehistoric life. Not only have countless paleontological artists



This painting emerged from Knight's work at left.

Zoological Park in the Bronx commissioned Knight to sculpt two life-sized African elephant heads for the elephant house, a full sized tapir and rhinoceros for the same house, and animal heads to decorate the zebra house. At Woods Hole, Massachusetts, where Knight spent his summer months, he painted various fish for the United States Fish Commission and the United States Bureau of Fisheries.

But Knight's primary allegiance was still to Osborn at the Museum. As the years progressed, their relationship strengthened. In truth, the paleontologist tended to regard the artist as an extension of himself. Osborn's dream was to make the Museum the greatest institution of its kind, and Knight was essential to this plan. In later years Osborn wrote, "Charles R. Knight is the greatest genius in the line of prehistoric restoration of human and animal life that the science of paleontology has ever known. His work in the American Museum will endure for all time."⁶

Part of Osborn's goal was to have Knight paint a series of murals for the Museum's Hall of the Age of Man. The first painting was of a woolly mammoth

arduous work. Upon its completion the artist received \$150,000, more than he had ever been paid before.

Back at the Museum, Osborn had more projects for Knight to work on. During the next few years Knight produced four more murals of various extinct mammals, and in 1934, to commemorate his 40th anniversary with the Museum, he painted a mural of the mammals that lived in Nebraska and South Dakota during the Oligocene period.

The Later Years

During his later life, Knight tended to spend more time at home in the company of his family. In Woods Hole, Massachusetts, he spent countless hours watching the natural world around him. Beautiful cloud formations, sunsets, and the growth of his garden were the things he cherished.

Rhoda Kalt remembers that her grandfather was a notorious nature lover. If a neighbor's lawn was not watered properly, Knight would water it at night. Wild animals always knew where to get fed, and Knight claimed that he knew each one personally.

turned to Knight's art for inspiration, but virtually every commercial artist who has ever recreated a prehistoric creature has used Knight's work as a reference. Adaptations of Knight's work have found their way into the World's Fair, dinosaur parks, movies, magazines, comic books, children's plastic toys and model kits — and just about anywhere else that a prehistoric creature is to be seen.

— Madeleine Dunphy

⁵Gzerkas, Sylvia Massey and Glut, Donald F., "Dinosaurs, Mammoths, and Cavemen," p. 2

⁶Ibid. p. 4

⁷Kalt, Rhoda Steel, *An Artist Who Recreated Living Prehistoric World* (Falmouth Enterprise, May 22, 1981), p. 7

⁸Ibid. p. 1

⁹Ibid. p. 4

¹⁰Gzerkas and Glut, op. cit. p. 23

¹¹Kalt, op. cit. p. 7

¹²Gzerkas and Glut, op. cit. p. 37

1985 Margaret Mead Film Festival

44 Films — 25 New York Premieres

Monday, September 9 through Thursday, September 12.

6:30 — 10:30 p.m.

\$3.00 for Members, \$4.00 for non-members

No Advance Sales

Tickets at the Door each Evening

The Margaret Mead Film Festival once again promises to be an exciting event this Fall. The forty-four selected documentary films have great range and power, stirring feelings as well as thoughts. The Festival provides viewers with an opportunity to look inward, and to consider one's culture in comparative terms.

One theme implicit in many of the works is that of quest. In Werner Herzog's *The Dark Glow of the Mountain*, a climber attempts to explain why he does what he does. Lee Grant's *What Sex Am I?* presents individuals in quest of resolving sexual identity.

Other films to be shown during the festival include:

A Man When He is A Man. Young men in Costa Rica talk about seducing women. This film is humorous and accurate in its portrayal of male posturing, as well as serious in its depiction of what can result from these men's attitudes about women.

Long Bow: A Village in Transition. This latest documentary on the Chinese village of Long Bow, by directors Richard Gordon and

Carma Hinton, will have its New York premiere at the Festival.

Metropolitan Avenue, Legacy of the Spirits, and *The Good Fight.* These films depict the vibrant community of Greenpoint in Brooklyn, voodoo religion, and recollections by participants in the Spanish Civil War, respectively.

The Memory of the Camps. Viewing this often devastating footage of German concentration camps just after the end of World War II, we find ourselves trying to comprehend why and how the events that scarred our century ever occurred.

Loving Krishna, Serpent Mother, and *Sons of Shiva* are three new films on India to be presented by the well-known filmmaker Robert Gardner and his colleagues Allen Moore and Akos Ostor.

For additional information on the Margaret Mead Film Festival, telephone weekdays for information at (212) 873-1070. A complete schedule of films will appear in the September issue of *Rotunda*.

A father, daughter, and granddaughter grind corn in an old millstone in Long Bow Village, to be shown on Tuesday, September 10 in the Margaret Mead Film Festival.



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Happenings at the Hayden

Sky Shows

A New Double Feature: *Hayden: The Golden Years* and *Halley's Comet: Once in a Lifetime.* June 27 through November 24.

Fifty years ago, the Hayden Planetarium opened its doors. Since then, over 25 million people have marveled at the wonders of the night sky or taken trips into space in the Sky Theater. *Hayden: The Golden Years* looks back at those five decades of history to relive the birth of the space age and to explore the universe of quasars, galaxies, and black holes. The show also takes viewers into the future to ponder how our universe might be transformed in the next fifty years.

Halley's Comet: Once in a Lifetime will demonstrate where and when to look for Halley's Comet. It will also explore the nature of comets and discuss how scientists will use this special opportunity to study a comet in more detail than ever before.

Sky Show admission for Participating, Donor and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-members' prices and Sky

Show times, please call (212) 873-8828.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings.

7:30 and 10:30 p.m.: *Heavy Laser.* Featuring a combination show of The Police, Van Halen, The Who, and Rush.

9:00 p.m. *Laser Floyd.* With the music of Pink Floyd.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

Camp Programs

The Planetarium offers many programs for young children. For camp information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.

Food Gifts of the Incas

Tuesday, July 30, 5:30 and 8:30 p.m.

Edith C. Blum Lecture Hall

\$5 and open only to Members



Peanuts, on and around a Mochica pot.

Thousand-year-old pottery in the shape of fruits and vegetables has left a fascinating archaeological record of the agriculture of the Incan and pre-Incan peoples of Peru prior to the Spanish conquest. Crops such as potatoes, peanuts, pineapples, squash, and beans were cultivated by these ancient peoples and later transported throughout the world by the conquering Europeans.

These food gifts of the Incas

and pre-Incas will be discussed in a program presented by Drs. Helen Ross and Robert S. Russell. *Food Gifts of the Incas* will feature slides of 500 to 1200-year-old Chimu and Moche pottery which was made by wrapping clay around various fruits and vegetables. Ethno-botanists now believe that several of these crops may have first been cultivated in what is now modern Peru.

The Russells will also

display Peruvian crafts collected from back-country markets, including weaving samples, ponchos, grain bags, and pottery.

Members will be able to taste refreshments prepared by the Russells which are based on these food gifts, including a sauce made of ground peanuts and hot peppers (used by the Incas as a topping for potatoes); fried sweet potatoes; dried squash; and various legumes and fruits.

Dr. Helen Ross Russell is an environmental education consultant and writer, whose books include *Foraging for Dinner — Collecting and Cooking Wild Foods*. Dr. Robert S. Russell teaches pre-Columbian art history, sculpture, and ceramics at Jersey City State College. This husband-wife team spent the summer of 1968 touring the archaeological sites of Peru, and have made similar expeditions to Mexico, the American Southwest, and little-known pre-Columbian areas over much of North America.

To register for *Food Gifts of the Incas*, please use the Coupon on page 3.

Museum Notes

Special Exhibitions

The Art of Cameroon. July 15 through October 15. This temporary exhibition will include ceremonial masks, pieces of jewelry and terra cotta, wood carvings and animal icons, most of which are from the Grassfields, a region of complex cultures and hierarchical institutions. Gallery 1. See page 1.

John James Audubon: Science into Art. Through July 21. This temporary exhibition, featuring Audubon's work as a naturalist, printmaker, and painter, will mark the 200th anniversary of his birth. Naturemax Gallery.

Maya: Treasures of an Ancient Civilization. Through July 28. This temporary exhibition from the Albuquerque Museum includes stone reliefs, pottery, jade and other works of art. Gallery 3.

Collectors Choice: Sea Shells of Nathan L. Halpern. Through Summer. This exhibit features the gleaming, rounded cowrie shell which has been used in various cultures for ornamentation, money, and religious symbols. The exhibit includes 57 shells donated by Nathan L. Halpern, a Museum supporter and avid shell collector. Hall of Mollusks and Mankind.

Titian Ramsey Peale, 1799-1885. Through Summer. Rare books, unpublished manuscripts, paintings, sketches and drawings illustrate the interests and activities of Titian Ramsey Peale, in an exhibit commemorating the centennial of his death. Library Gallery.

Moving a Museum: The Rothschild Collection of Birds. Through Summer. A display of birds of paradise and other unusual birds that were amassed by Lord Walter Rothschild and sold to the American Museum in the 1930s. Second Floor Rotunda.

Mountain of the Mist. Through September 2. A photo exhibition about the Neblina expedition in Venezuela. Akeley Gallery. Page 3.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the first-floor information desk. If you wish to join a free tour, please ask at an information desk for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Saturday, 10:30 a.m. to 12:30 and 1:30 to 4:30 p.m. Closed Sundays, Mondays, and July 4.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m. Closed during August.

Naturemax Information

On New York's largest movie screen — 4 stories tall and 60 feet wide — the Naturemax Theater continues to dazzle audiences with two all-time favorite IMAX films: *To Fly!*, a breathtaking view of the history of flight from hot-air balloons through rockets into space; and *Living Planet*, an ecological tour of some of the earth's most awesome sights.

The box office is located in the 77th St. lobby near the

Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$7.00 for cars and \$8.00 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri.,

11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Terrace Cafe. Open daily, May 15, through early September from 11:30 a.m. to 4:30 p.m. Located on the West 77th St. Ellipse.

Coat Checking. Daily from 10:00 a.m. to 5:30 p.m. in the basement. Rate is \$.50 per item, through September 30.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Why Scientists Believe in Evolution

Dr. Norman Newell, Curator Emeritus in the Museum's Department of Invertebrates, welcomed me into his office and handed me an article that appeared in the Spring, 1985 issue of the *Ohio State Alumni News Quarterly*. The article, entitled *Creation "Science": a Survey of Student Attitudes*, discussed a survey designed to study student attitudes towards creationism and evolution. The survey, conducted by Paul Fuerst, assistant professor of genetics at Ohio State, sampled nearly 2,400 students who were enrolled in biology, anthropology, linguistics, and genetics classes. Among the findings were the following.

- Only 59% of the students believed that evolutionary theory has a "valid scientific foundation";
- More than a fifth of the students thought that "the teaching of concepts which rely on a purely naturalistic explanation of the world, such as that used in the modern theory of evolution, might eventually lead to a 'decay' of American society";
- 80% of the students supported equal time for the teaching of evolutionary theory and ideas such as "special creation" in public schools;
- 58% of the students responded "no" when asked if teaching creation science amounted to teaching religion in the public schools.

Dismayed by this and similar national studies, Newell has joined the ranks of concerned scientists such as Ernst Mayr, Stephen J. Gould, and Niles Eldridge who see the creationism vs. evolution controversy as well worth addressing. For Newell, this means contributing to public education about evolution.

"For several decades, the public had a certain trust in scientific theories. Now, due to many of the side effects of technology such as pollution, and to the threats posed by bombs, the public feels that science may be a bane to mankind," said Newell. "Many people now see science as the culprit."

"Scientific illiteracy is real," Newell believes, and he has set out to combat it through education. From 1973 to date, he has written several articles about

evolution. Of special interest and easy access to the public is his recently-published book *Creation and Evolution, Myth or Reality?* and a new pamphlet entitled *Why Scientists Believe in Evolution*.

"There is a controversy these days about whether the study of evolution is destructive of morals and religion, and therefore should be suppressed in the schools," the pamphlet begins. "This controversy is surprising to scientists who work in biology and geology, and who accept evolutionary change as an established fact of nature."

In this fascinating pamphlet geared toward the interested layperson, Newell discusses the importance of evolutionary concepts, elucidating the fundamental "likeness" of all living things from trees to whales, and how environment, geography, genes, and time are all factors that contribute to the enormous diversity of the plants and animals we see around us today.

"The remarkable thing about this diversity is that it is not haphazard, but can be clustered into natural groupings. Early biologists were confident that they had discovered the 'Grand Plan of Creation'."

But modern biologists see the natural groupings they find in the plant and animal kingdoms as the result of evolution, a story that is written in fossils, in layers of earth, and in the structures and biochemistry of living animals.

Other topics touched upon by the pamphlet are the chemical basis of heredity, the geographical distributions of today's organisms, and what scientists have learned about evolution from fossils, and from the selection and breeding of plants and animals in modern times.

Why Scientists Believe in Evolution concludes on the note that evolution and religion do not need to be at loggerheads with one another, they have different domains.

"The sciences concerned with the past can discover much of what happened long ago, how, where, and when events occurred. But they cannot discover the purpose or destiny of human existence

Such ideas lie within the mind of each individual, and are the domain of religion, morality, and philosophy. Science cannot, and does not, pretend that it will ever be able to answer all the questions of life."

A free copy of *Why Scientists Believe in Evolution* can be obtained by writing to the American Geological Institute, 4220 King Street, Alexandria, Va 22302. This organization serves geologists both in the U.S. and abroad, and helps promote earth science education and public awareness of geological issues.

The book *Creation and Evolution* was published by Praeger Special Studies, New York (a paperback division of CBS). Newell's editors have told him that it is expected to be published in several foreign languages.

Newell's latest project in the public interest is on a different subject. "I'm just giving birth to something that might be very exciting," he said, taking two graphs out of a file. "Tomorrow I'm taking this down to the Population Institute, and I'll show you what we're hoping to contribute here."

One graph shows the curve that results when the seasonal and yearly concentration of carbon dioxide (CO₂) in the atmosphere is plotted against world human population. The other curve results when CO₂ concentration is plotted against time. Both curves show constant increase, and both are almost the same — there is a .9985 correlation between them, 1 being perfect. This shows that world population and the amount of CO₂ in the air we breathe are rising at almost exactly the same rate.

Such information could be of great value to population, environmental, and health policies of the future. Said Newell, "We'll give this information to the experts and see what happens. Somebody out there might be interested. If we get a lot of encouragement, this thing might spread like wildfire."

— Ruth Q. Leibowitz

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				4 Independence Day (Museum Open)		6 1:00 — 4:30 p.m. <i>Native America Month Dances</i> from the Southwest and Plains <i>She Who Weaves</i> — Roles of Native American Women Leonhardt People Center Free
7 1:00 — 4:30 p.m. <i>Native America Month</i> Same as July 6		9 Last Quarter (half moon)	10 6:00 and 7:30 p.m. <i>Gramercy Park Tour, Members' Sunset Tours.</i> Sold Out from June Rotunda	11 6:00 and 7:30 p.m. <i>Gramercy Park Tour, Members' Sunset Tours.</i> Sold Out Moon is at apogee		13 1:00 — 4:30 p.m. <i>Native American Month Off the Beaten Path</i> , a theater piece with Vira & Hortensia Colorado, Muriel & Glona Miguel, Lisa Mayo, Dona Brooks Couteau, and Louis Molsie; <i>Spirituality and Social Stratification</i> , lecture with Robert Grumet. Leonhardt People Center. Free.
14 1:00 — 4:30 p.m. <i>Native America Month</i> Same as July 13	15 <i>The Art of Cameroon</i> exhibit opens today in Gallery 1		17 New Moon			20 1:00 — 4:30 p.m. <i>Native America Month Dances from the Southwest and Plains</i> , with the Thunderbird Dance Co.; <i>Medicine to Mythology</i> , lecture with Robert Bernstein. Leonhardt People Center. Free.
21 Last day to view <i>John James Audubon, Science Into Art</i> exhibit in the Naturemax Gallery 1:00 — 4:30 p.m. <i>Native America Month</i> Same as July 20	22 Members of the Galapagos Islands Cruise arrive in Quito, Ecuador. For information on future Discovery Tours, call (212) 873-1440	23 8:00 p.m. <i>Met Grotto, Nat'l Speleological Society.</i> Room 129. Free.	24 First Quarter (half moon)	25 6:00 and 7:30 p.m. <i>Hayden: The Golden Years, Special Members' Viewing.</i> Hayden Planetarium. Tickets required. Page 3 Moon is at perigee		27 1:00 — 4:30 p.m. <i>Native America Month Off the Beaten Path</i> , a theater piece with Vira & Hortensia Colorado, Muriel & Glona Miguel, Lisa Mayo, Dona Brooks Couteau, and Louis Molsie, <i>Woodlands Beadwork</i> with Lou Gilson. Leonhardt People Center. Free.
28 Last day to view <i>Maya Treasures of an Ancient Civilization</i> in Gallery 3 1:00 — 4:30 p.m. <i>Native America Month</i> Same as July 27		30 5:30 and 8:30 p.m. <i>Food Gifts of the Incas, Members' Evening Program.</i> Tickets required. Page 6 Members of the East African Safari Discovery Tour arrive in Kigali, Rwanda. For information on future tours call (212) 873-1440.	31 Full Moon			

July 1985

A scene from *The Cumana Devil*. One of 44 excellent films in this year's Margaret Mead Film Festival. Page 6.



Rosel Salvatore

6 7:30 p.m. *Songs of the Sea, Members' Evening Program.* Main Auditorium. Tickets required. Page 2.

7 Moon is at apogee

8 Last Quarter (half moon)



Visit the air-conditioned Naturemax Theater this summer. Page 7

13 11:00 a.m. and 7:30 p.m. *Delightful Animals, Members' Family Program.* Tickets required. Page 3

16 New Moon

19 Moon is at perigee

A comet probe encounters the wispy tail of Halley's Comet in a new *Sky Show*. Pages 3 and 6.



Brian Sullivan

27 8:00 p.m. *Met Grotto, Nat'l Speleological Society.* Room 129. Free.

22 First Quarter (half moon)

August 1985

American Museum of Natural History

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 10, No. 8 September 1985



A female green tree frog will soon respond to the call of this male.

Questioning the Animals

Thursday, September 19

7:30 p.m.

Main Auditorium

Free, and open only to Members

What can a scientist learn from a frog's voice? Why do some fish emit electrical signals that are not strong enough to kill either prey or predator? What might the behavioral differences between two related species of mice tell us not only about the mice, but about evolutionary change?

One of the qualities common to all scientists is a burning curiosity about why things are the way they are, how they came to be this way, and what we can learn from the answers. Each scientist, however, asks and answers questions in his or her own style. In *Questioning the Animals* three Museum scientists will introduce Members to the animals they study, the questions they ask about

these animals, and their methods of inquiry and observation.

Peter Moller (Department of Ichthyology) has long asked electrifying questions about fish. His findings have led to new information about how several different species of electric fish, such as the African elephant-nosed fish and the electric catfish, use electrical signals to communicate.

Ethel Tobach (Department of Mammalogy) wanted to know how and why two different species of spiny mice overlap in both range and food sources, but are active at different times of the day. Giving examples of both field and lab observations, she will discuss how the evolution of certain behavior character-

istics may have played an important role in these animals' ability to coexist.

Listening to vocalizations is one of the major ways a frog recognizes members of its own species. Richard Zweifel (Department of Herpetology) is a systematist who listens to the frogs. Using slides and recordings, he will discuss the important role of frog vocalization in both frog life and Museum work.

Beginning one hour before the program, several of the live mice, electric fish, and frogs who have contributed to science will be on view outside the Auditorium.

To register for *Questioning the Animals* please use the September Members' Programs coupon on page 3.

Margaret Mead Film Festival

The forty-four specially selected films in this year's festival delve into the realms of ritual and ceremony, ties to the land, male-female relations, city life, and more. Pages 7 through 10 provide the complete schedule of films.

Fall Courses and Workshops

This issue of *Rotunda* is brimming with courses and workshops. Here are just a few highlights:

- ☐ Wild animals, fascinating films from the Museum's archives, and alternative healing practices await Members among the *Fall Afternoon and Evening Lecture Series*, pages 4, 5, and 6.
- ☐ Young people will draw animals, learn about reptiles, and trace our human ancestors in *Workshops for Young People*, page 12.
- ☐ Explore the sky and the universe, and prepare for Halley's comet in this season's *Courses for Stargazers*, page 11.
- ☐ Participants can learn about Andean wind instruments, Hulchol sacred art, and more in the *Latin American Workshops*, page 14.

Special Members' Events

September and October Members' programs include anthropology films for young people (page 2), curious scientists (this page), an introduction to Halley's comet (page 3), and a special outlook on and in Brooklyn (page 3).

The Art of Cameroon Lectures

Two Sundays, September 22 and October 6
Kaufmann Theater, 2:00 p.m. Free.



Prestige stool from the Western Grassfields.

The West African nation of Cameroon contains diverse natural environments in which distinct cultural patterns have developed. In the forest and coastal areas, village organization and egalitarian social structures are the norm. In the Grassfields, more centralized political institutions are supported by chieftaincies, regulatory societies, and judicial organizations. Cameroonian art reflects these various social structures, with the greatest artistic production found in the palaces and royal treasuries of the Grassfields.

In conjunction with the special exhibition "The Art of Cameroon," the Museum's Education Department will present

two slide lectures which will expand on the exhibit's themes.

Visual Metaphors: Royal Art of the Cameroon Grassfields (September 22) will introduce the social and political systems on which art from this area is based. Discussion of the meaning of sculpture and masks in the pre-colonial 19th century kingdoms will be followed by a spotlight on the expressive power of female art images and their relation to the role and status of Cameroonian women. The lecturer, Tamara Northem, is the guest curator of *The Art of Cameroon*, and senior curator of Ethnographic Art at the Hood Museum, Dartmouth College.

Masterpieces of Cameroon Art: Beauty in the Court and the

Compound (October 6) will highlight the connections of sculpture and architecture to royalty and commoner alike. Dr. Sylvia Boone will discuss the function of Cameroonian art in royal and ritual ceremony, and in daily recreational and household life. Dr. Boone is Associate Professor of Art History at Yale University. Her second book, *Radiance From the Waters: Women and Beauty in Mende Art*, is currently in press.

These lectures are free to all Museum visitors, with seating on a first-come, first-served basis. They have been made possible in part by a gift from the Henry Nias Foundation. For further information, please call (212) 873-1300, ext. 514.

Volunteer Origami Classes

Six Wednesdays, 6:30-8:15 p.m.
September 18; October 2, 9, 16, 23 and 30

Fruits and flowers, birds and beasts, stars and spiders, and hordes of other extinct and extant creatures combine to grace the Origami Holiday Tree in the Roosevelt Rotunda at the end of each year. Volunteer Origami specialists Alice Gray and Michael Shall are looking for new recruits who want to learn the art of paper folding, and share their new skills with Museum visitors.

• Classes will be held on six

Wednesdays — September 18, October 2, 9, 16, 23, and 30 — from 6:30 to 8:15 p.m. Participants will begin by learning to fold swans and strawberries, then work up to more complicated Origami figures such as the Omega star and the popular peacock. The instructors will emphasize how to teach these techniques to Museum visitors who stop by the Origami table when the Holiday Tree is up.

The classes and all necessary

materials are offered free of charge. In return, workshop participants will be asked to volunteer an equal amount of teaching time at the Origami teaching table. Class size will be limited, so Members are encouraged to register as soon as possible.

For further information and registration, please stop by or call the Volunteer Office at (212) 873-1300, ext. 472.

Happy folding!

Faces Film Festival:

Young People of North America

Sunday, September 29
11:00 a.m., 1:00 and 3:00 p.m.

Kaufmann Theater
Free and open only to Members

Young people ages six and up now have an annual anthropological film program all their own as the Museum and FACES magazine join forces to present the first annual FACES Film Festival. In this year's program, young Members will see how children live, work, and play in four different North American cultures.

In *Veronica*, a nine-year-old girl tells her story. She lives in a neighborhood in Toronto where many of her neighbors, like her parents, are immigrants from Poland. The sounds of her native language, the Eastern European baking she does with her parents, and the folk dances she learns help her maintain a strong affection for her roots.

Tovoya is a Hopi boy who lives in the Arizona desert. In *Indian Boy of the Southwest*, he

introduces Members to the Hopi people of his mesa. Young Members will learn about Hopi village life, art, food preparation, education, and games.

Young Members will also be introduced to the games and family life of Inuit children in *Tuktu and the Indoor Games*, and meet Nannabah, a young Native American girl who must herd her sheep alone for the first time, in *Girl of the Navajo*.

In celebration of this new program, Members up to 15 years of age can take home a free issue of FACES magazine (an anthropology magazine for young people), and participate in a craft activity.

To register for the first annual FACES Film Festival, please use the September Members' Programs Coupon on page 3.

ROTUNDA

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Prospecting in Brooklyn

\$5 per tour and open only to Members

Sidney Horenstein of the Museum's Department of Invertebrates is an indelible explorer of the urban environment. Join him on his walking tours through two of Brooklyn's most charming locales.

Prospect Park. September 28 at 10:00 a.m., 12:30 and 2:30 p.m. Prospect Park was the creation of the brilliant designers Frederick Law Olmstead and Calvert Vaux. First designed when Brooklyn and Manhattan were separate cities, Prospect Park was Brooklyn's creative and competitive answer to Manhattan's Central Park.

This tour will provide an overview of the human and geologic forces that shaped this magnificent area. Prospect Park

marks the southernmost extent of the glaciers that covered the New York area during the most recent ice age. Members will view kettle holes, moraines, outwash plains and other features created by moving glaciers.

Throughout the tour, Mr. Horenstein will provide historical insights about the area, where an important battle of the Revolutionary War was fought. He will also identify some of the trees and other plants that grace the park's terrain.

Brooklyn Heights. October 6 at 10:00 a.m., 12:30 and 2:30 p.m. Members will enjoy spectacular views of New York Harbor and lower Manhattan. From the vantage point of the

Heights, Members will learn how Manhattan and the harbor were formed, why the East River is not really a river at all, and the location of the tallest hill in New York City.

This tour will include a stroll through neighborhoods with houses that were built between the late eighteenth century and the present. Mr. Horenstein will use these houses, constructed with everything from fieldstone to granite, to illustrate how building materials and technology have changed during the past two hundred years.

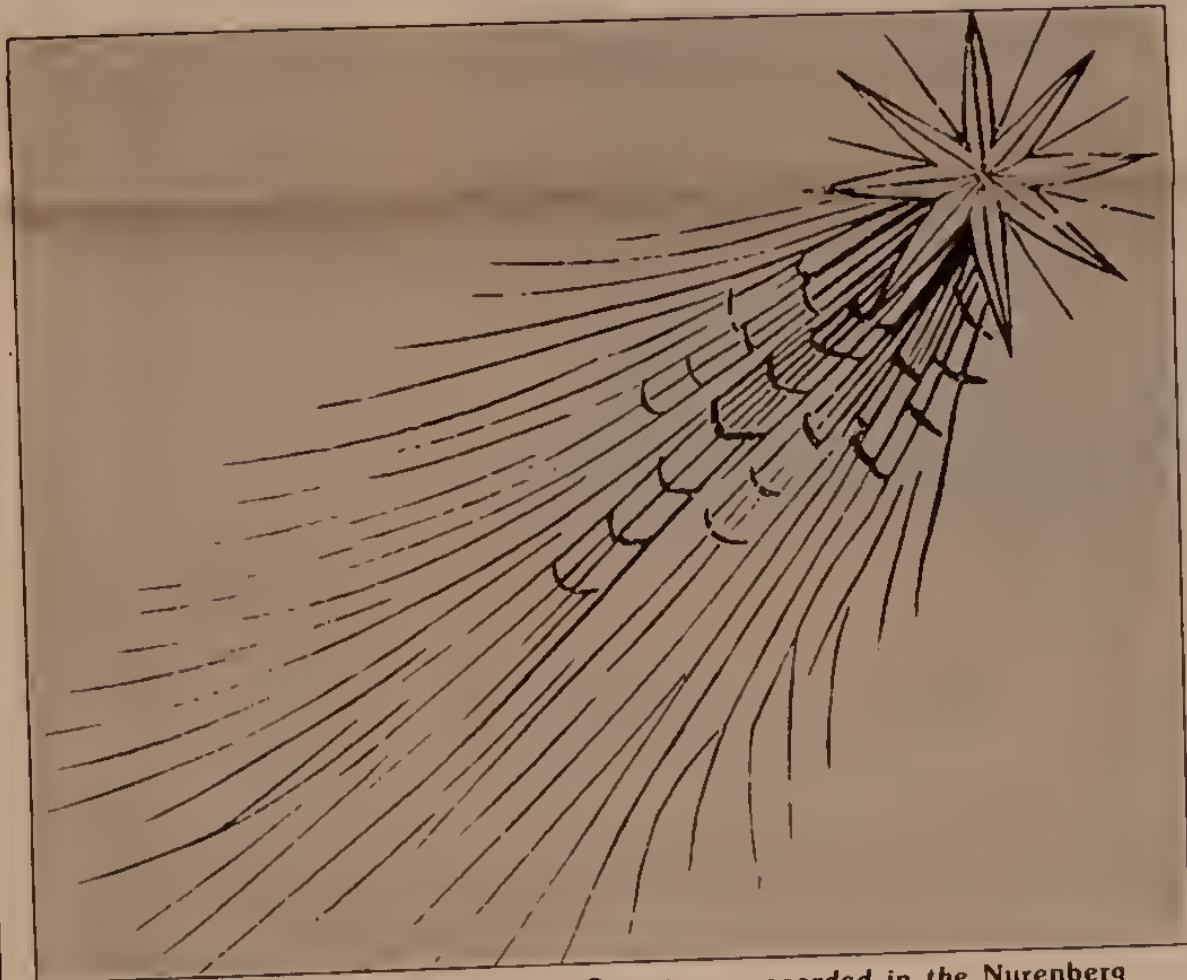
To register for one or both of the *Prospecting In Brooklyn* tours, please use the adjacent September Members' Programs Coupon.

Here Comes Halley's

Thursday, October 17
7:30 p.m.

Main Auditorium

\$3.00 for Members, \$6 for non-members



The 684 A.D. appearance of Halley's Comet was recorded in the Nuremberg Chronicles (1493).

Halley's comet has been sighted on the earth at approximately 76-year intervals since at least 240 B.C. It is believed to be the large comet sighted during the Norman Conquest of 1066, and shown in the Bayeux Tapestry of that time. Recently, modern astronauts have refined their calculations of the comet's orbit with the aid of a record of Babylonian observations from 164 B.C.!

Now, Halley's comet is on its way again. It is scheduled to make its closest appearance to the Sun in February, and Earthlings will have their best chance to view it next April. Afterwards, it will head into the far reaches

of our solar system, not to return this way until 2061.

Members are invited to preview the comet's arrival in a slide-illustrated program with Stephen P. Maran, a senior staff scientist at NASA's Laboratory for Astronomy and Physics, and the Sky Reporter columnist for *Natural History* magazine. In this wide-ranging program, Members will learn the rich lore, scientific history, and modern knowledge of this special comet, and find out about viewing conditions for observers at various latitudes on the Earth.

Here Comes Halley's will begin with a look at the natural history of comets. What are com-

ets made of, and how are they formed? What can they tell us about the origins and working of the universe? Dr. Maran will take a look at recent research conducted by NASA and other scientific organizations around the world, and discuss new findings about Halley's, such as unexpected changes in the comet's brightness, and detection of what may be the comet's coma or atmosphere. The program will conclude with a look at the historical appearances of the comet.

To register for *Here Comes Halley's*, please use the adjacent September Members' Programs Coupon.

September Members' Programs Coupon

A special note to Members: *Autumn at the Museum* is a busy time. In addition to the Membership programs listed below, the Department of Education and the Hayden Planetarium are offering many fascinating courses and workshops. Due to these varied offerings, there are several different coupons in this issue of *ROTUNDA*. When registering for programs and courses, please be sure to mail coupons for different departments in separate envelopes. This will insure that your coupons are not inadvertently misplaced, and will speed up your registration. Thank you!

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total Amount Enclosed: _____

Please make check (if applicable) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: September Members' Programs, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.

Questioning the Animals. Thursday, September 19. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$3.00.

Number of free tickets: _____
Number of tickets at \$3.00 each: _____ \$ _____
Amount enclosed for program: _____

FACES Film Festival. Sunday, September 29. Free and open only to Members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to two. Additional tickets are \$2.50. Please indicate first, second, and third choice of times, if possible.

_____ 11:00 a.m. _____ 1:00 p.m. _____ 3:00 p.m.

Number of free tickets: _____
Number of tickets at \$2.50 each: _____ \$ _____
Amount enclosed for program: _____

Prospecting in Brooklyn. \$5.00 per tour and open only to Members. Please indicate which tour or tours you wish to join, and a first and second time preference, if possible.

_____ Prospect Park (September 28)
_____ 10:00 a.m. _____ 12:30 p.m. _____ 2:30 p.m.
_____ Brooklyn Heights (October 6)
_____ 10:00 a.m. _____ 12:30 p.m. _____ 2:30 p.m.

Number of Prospect Park tickets at \$5.00 each: _____
Number of Brooklyn Heights tickets at \$5.00 each: _____
Amount enclosed for tours: _____ \$ _____

Halley's Comet. Thursday, October 17. \$3.00 for Members, \$6.00 for non-members. Participating, Donor and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to one. Additional tickets are \$6.00.

Number of tickets at \$3.00 each: _____
Number of tickets at \$6.00 each: _____ \$ _____
Amount enclosed for program: _____

Please look over your coupon before mailing it to the Museum. Have you included your name and address? Does the total amount enclosed equal the sum of the amount enclosed for each program? Thank you for checking.

The Department of Education Presents the Fall
Afternoon and Evening Lecture Series

SUMER: ROOTS OF MODERN CIVILIZATION

Three Tuesday evenings starting
 October 22
 7:00-8:30 p.m.
 Fee: \$20 (\$18 for Members)

Slide-illustrated lectures on the architecture, royal tombs, art styles and social life of this famed ancient civilization.

- Oct. 22 **ANCIENT SUMER AND THE MODERN MARSH DWELLERS:** Dr. **Edward L. Ochsenschlager**, Chairman of the Department of Anthropology and Archaeology at Brooklyn College, describes excavations at Al-Hiba in Iraq, the ancient Sumerian capital city. Dr. Ochsenschlager examines this evidence and suggests interpretations and comparisons with objects in contemporary villages, illuminating potential pitfalls in the interpretation of archaeological data.
- Oct. 29 **ANCIENT CITIES OF SUMER:** Ancient Sumerian cities such as Ur with its great ziggurat and lavish royal tombs, and Mari with its elegant portrait sculptures. Votive statues inscribed with the donor's name yield insight into the social character of the society. Artistic styles, some of which spread into Syria, are expressed in wood, metal and stone as borne out by recent discoveries at Tell Mardikh. Dr. **Trudy Kawami**, Professor of Art History at Columbia University, is the lecturer.
- Nov. 12 **ARCHAEOLOGY AND SUMERIAN CULTURE:** Dr. **Samuel Noah Kramer**, Professor of Archaeology and Anthropology at the University of Pennsylvania, presents an overview of Sumerian archaeology relating it to the nature of Sumerian society. In developing man's first urban civilization the Sumerians created a veritable Garden of Eden from a hot and dry, wind-swept land with little timber and virtually no minerals. Yet some of the most significant achievements of Near Eastern civilization were generated by these people.

JEWISH COMMUNITIES IN HISTORY

Four Thursday evenings starting
 October 24
 7:00-8:30 p.m.
 Fee: \$25 (\$22.50 for Members)



In four slide-illustrated lectures, the theme of cultural continuity amid diversity and dispersion is explored. By analyzing Jewish communities worldwide, and placing them in a historical and regional context, values and lifestyles can be understood. Dr. **Jane S. Gerber** is Associate Professor of Jewish History for the City University of New York, and is author of *Jewish Society in Fez*.

- Oct. 24 **JEWISH COMMUNITIES IN HISTORY**
 Oct. 31 **THE BLACK JEWS OF ETHIOPIA**
 Nov. 7 **CHINESE AND INDIAN JEWISH COMMUNITIES**
 Nov. 14 **ISRAEL'S MAJORITY: ORIENTAL JEWS IN ISRAEL**

CULTURE, HEALTH AND ILLNESS

Six Tuesday evenings starting
 October 22
 7:00-8:30 p.m.
 Fee: \$35 (\$31.50 for Members)

What we consider health, and how we recognize and respond to illness, are influenced by historical and cultural factors. By looking at the way other cultures deal with illness and treatment we can acquire a new perspective on our own concepts. Dr. **Judith M. Treistman** is Associate Professor of Nursing, at H.H. Lehman College and has published two books and numerous articles on anthropology and medical practice.

- Oct. 22 **CULTURAL HISTORY OF DISEASE.** Diseases in pre-history; disease and the Native American population.
 Oct. 29 **EAT AND BE WELL.** Cultural notions about food and health; the food "revolutions."
 Nov. 12 **BEING BORN.** Birth practices and beliefs in cross-cultural perspective.
 Nov. 19 **TRADITIONAL MEDICINE.** Beliefs about health and illness in the non-Western world.
 Nov. 26 **THE HEALERS** Shamans, witches, herbalists, and priests.
 Dec. 3 **ALTERNATE HEALING SYSTEMS** "Frisolous" fads and alternate therapeutic treatment modes.

FILMS FROM THE MUSEUM'S ARCHIVES

Five Thursday evenings starting
 October 24
 7:00-9:00 p.m.
 Fee: \$30 (\$27 for Members)

The Museum's archival film collection dates from 1908 to the present. The use of film to document the Museum's scientific expeditions, and the importance of the collection in today's Museum are part of the content of this series. **Nina J. Root**, Library Services Chairwoman, and **Penelope Bodry-Sanders**, Film Grant Associate, are lecturers. Films or film excerpts are shown at each session.

- Oct. 24 **CENTRAL ASIATIC EXPEDITION FILMS (1921-1930).** Film records of Roy Chapman Andrews' work in Mongolia from 1921-1930.
 Oct. 31 **RARE FOOTAGE FROM THE COLLECTION.** Native dances and music from the French Cameroons recorded in the 1920s, Douglas Burden's 1926 expedition to Malaysia in search of the Komodo Dragon, and Dr. Henry C. Raven's 1932 film of his domesticated chimpanzee at his Long Island home with the Raven children.
 Nov. 7 **RECORDS OF IRREVOCABLY ALTERED SOCIETIES.** A look at 1920s footage from East Africa that is totally unmarked and unidentified, and the process of analyzing it. A 1953 film by Edgar Monsanto Queeny about the East African Latuko people that failed to get passed for national distribution by the censorship board.
 Nov. 14 **THE CBS-AMNH ADVENTURE SERIES OF THE 1950s.** A precursor to present-day TV ethnographic and nature films reviewed from today's perspective. Two complete shows plus highlights.
 Nov. 21 **MEDITATIONS ON THE FILM COLLECTION:** How these films affect us emotionally and intellectually. Scenes of Australian Aboriginal women foraging for food, from the Mt. Liebig Expedition in 1932. Out-takes from "Brazilian Primitives," a film shot on the Tapirapé in 1954 for the Museum by Victor Jurgens, but never completed. R.T. Littlejohn's beautiful sound film of the Australian lyre bird made in the 1920s. Armand Denis' footage of a Burmese priestess in supplication to a king cobra.

INDIA: POLITICS AND CIVILIZATION

Two Monday evenings
October 21 and 28
7:00-8:30 p.m.
Fee: \$15 (\$13.50 for Members)

Dr. Leonard A. Gordon, Professor of History, Brooklyn College and Senior Research Associate, Southern Asian Institute, Columbia University. He is the author of *Bengal: The Nationalist Movement 1876-1940*, which was awarded the Watumull Prize by the American Historical Association. Dr. Gordon presents two slide-illustrated lectures.

- Oct. 21 **INDIAN CIVILIZATION: HISTORICAL AND LIVING TRADITIONS.** From scenes of contemporary India, Pakistan and Bangladesh, Dr. Gordon moves back to the beginnings of Indian civilization in the Indus Valley. He goes on to discuss important Buddhist sites including Sanchi and Ajanta as well as the Hindu sites of Elephanta, Mahabalipuram, and Konarak. He illustrates the history of Islamic and European traditions in the sub-continent, and discusses how they have blended with ongoing tradition.
- Oct. 28 **MAHATMA GANDHI AND RABINDRANATH TAGORE: THE SAINT AND THE POET IN INDIA'S FREEDOM STRUGGLE.** The biographies of these two extraordinary modern Indians illustrate how they used Indian traditions in new and creative ways to help bring about the cultural and political liberation of their country.



GEOLOGY AND NATURE IN THE BIG APPLE: MYTHS AND REALITIES

Six Monday evenings starting
October 21
7:00-8:30 p.m.
Fee: \$35 (\$31.50 for Members)

There are more than eight million stories in the naked city: alligators in the sewers; underground rivers in lower Manhattan; mastodons roaming Broadway; an emerald mine on Staten Island and a major geologic fault on 14th Street. Myths or realities? These tales and more are dissected to discover if there are factual bases for them. This slide-illustrated series is given by **Sidney S. Horenstein**, Senior Scientific Assistant in the Museum's Department of Invertebrates.

- Oct. 21 **TALES WITHIN THE BED-ROCK**
Oct. 28 **TALES UNDER THE SURFACE**
Nov. 4 **TALES FROM THE SOIL**
Nov. 18 **TALES IN THE AIR**
Nov. 25 **TALES ON THE GROUND**
Dec. 2 **TALES OF FAMILIAR SURROUNDINGS**

AFRICAN MAMMALS

Six Tuesday evenings starting
October 22
7:00-8:30 p.m.
Fee: \$35 (\$31.50 for Members)

Africa has long served as a vast outdoor laboratory for studying the behavior of wild animals. **Dr. Richard G. Van Gelder**, Curator in the Mammalogy Department at the Museum, and a leader of Museum Discovery Tours to Africa, specializes in studying the behavior of African mammals. His lectures utilize his own excellent slides.

- Oct. 22 **THE GIANTS.** Elephant, giraffe, rhino, and hippo.
Oct. 29 **THE HUNTERS.** Lion, cheetah, leopard, hyena, and wild dog.
Nov. 12 **THE PREY.** Buffalo, wildebeest, and zebra.
Nov. 19 **THE PREY.** Antelope and gazelle.
Nov. 26 **WEE BEASTIES.** Dik-dik, suni, duiker, and hyrax.
Dec. 3 **MAN'S POOR RELATIONS.** Gorilla, baboon, and vervet.

MAGIC, WITCHCRAFT, AND SORCERY

Six Monday afternoons starting
October 21
2:30-4:00 p.m.

or

Six Thursday evenings starting
October 24
7:00-8:30 p.m.
Fee: \$35 (\$31.50 for Members)

"Eye of newt and toe of frog, wool of bat and tongue of dog . . . Cool it with a baboon's blood, then the charm is firm and good." Witchcraft, like religion, deals with controlling problems through complex beliefs and rituals. What are the similarities and differences in magic and witchcraft from society to society? In what social contexts is witchcraft used? This series is a serious social-historical inquiry into beliefs and practices. **Paul J. Sanfacon** is Lecturer in Anthropology at the Museum.

1. **DOCTORS OR WITCHDOCTORS.** White and black magic, legitimate and illegitimate use of power.
2. **POLITICS AND ECONOMICS OF WITCHCRAFT:** The African variant — ancestral ghosts are interested in the affairs of the living.
3. **WITCHES, GOD AND THE DEVIL:** The European variant — the pious lusts of social reform.
4. **EXORCISTS, INCANTATIONS AND PREACHERS:** aspects of Voodoo and other possession cults and religions — unbelievably subtle words and deeds.
5. **THE SALEM WITCH TRIALS:** An American variant.
6. **CONCLUSIONS:** What is it that is working and that works?



ANTHROPOLOGY FILM MATINEE

Three Tuesday afternoons starting
November 19
2:30-4:30 p.m.
Fee: \$20 (\$18 for Members)

Dr. Malcolm Arth, anthropologist and an organizer of the Museum's annual Margaret Mead Film Festival, introduces four works which reveal facets of life in three North American cities. Would-be stars and has-beens in Hollywood, prostitutes in Vancouver, women in Brooklyn and a dry-cleaner in Manhattan are all part of this series exploring diverse styles of urban living.

- Nov. 19 **SUNSET PEOPLE.** 1983. 90 minutes.
Director, Janna Bokova
A Czechoslovakian filmmaker looks at the culture of Los Angeles and Hollywood.
- Nov. 26 **EUGENE'S VALET.** 1984. 22 minutes.
Director, Jane Chapline
An unmistakably New York character runs a small business.
- Dec. 3 **METROPOLITAN AVENUE.** 1984. 58 minutes.
Director, Christine Noschese
Determined women in the neighborhood of Greenpoint, Brooklyn.
- HOOKERS ON DAVIE.** 1984. 88 minutes.
Directors, Janis Cole and Holly Dale
Vancouver's nightlife does not end at dawn.



PLANTS OF THE WETLANDS

Five Tuesday afternoons starting
October 22
2:30-4:00 p.m.

or

Five Thursday evenings starting
October 24
7:00-8:30 p.m.
Fee: \$30 (\$27 for Members)

From the northern forests of Canada to subtropical areas in Florida, plants often grow in greatest variety and numbers in wet areas. This slide-illustrated series of lectures explores the varied plant life of lakes, bogs, marshes, swamps, and seashores in eastern North America. Flowering and non-flowering plants are examined together with characteristics of their environments. **Helmut Schiller** is Lecturer in Botany at the Museum.

1. **PLANTS OF NEW ENGLAND BOGS.** The world of insectivorous plants, bog orchids, and arctic relicts. Origin and ecological significance of bogs.
2. **IN SOUTHERN BOGS.** Plants of the Okefenokee, and bogs within the New Jersey Pine Barrens.
3. **IN PONDS AND MARSHES.** Early natural water succession. Plant life among the water lilies, cattails, and reeds.
4. **PLANTS OF WET WOODS, SWAMPS, AND STREAMSIDES.** Neutral water succession toward the climax. Plant life among the pioneer shrubs and trees.
5. **ALONG THE SEASHORE.** Plants of salt marshes, and rocky and sandy seacoasts.





THE WORLD OF BIRDS

Five Monday evenings starting
October 21
7:00-8:30 p.m.
Fee: \$30 (\$27 for Members)

This series focuses on the evolution and adaptations of birds, with special emphasis on avian biology as it relates to flight. Topics include evolution from reptiles, feathers and molt, migration and behavior. **Jay Pilocchelli**, graduate researcher in the Department of Ornithology, utilizes slides, films and tape recordings, Museum exhibits and collections. A behind-the-scenes tour of the Ornithology Department shows how scientists investigate and determine the relationships of birds based on anatomical, biochemical and behavioral analyses.

- Oct. 21 EVOLUTION OF BIRDS
- Oct. 28 MIGRATION AND ORIENTATION
- Nov. 4 BIRDSONG, FUNCTION AND PRODUCTION
- Nov. 18 BEHAVIOR
- Nov. 25 BIRD ARCHITECTURE

PHOTOGRAPHY IN THE FIELD

Four Tuesday evenings starting
October 22
7:00-8:30 p.m.
Fee: \$25 (\$22.50 for Members)

Richard P. Sheridan, supervisor of the Museum's Photography Studio, presents a four-part lecture series covering evolution of in-the-field photography since the 1840s. Images from the Museum's photographic technologies and their applications. Lectures are illustrated with slides, film and other visual aids.

- Oct. 22 THEN AND NOW: THE CAMERA. Basic camera and related equipment. Historical problems in field photography and the strategies to overcome them. New technology and new directions.
- Oct. 29 CAPTURING THE IMAGE. The evolution of film and paper technology (direct positives, glass plates, nitrates, lantern slides, albumen prints, paper negatives) from the 1840s to the present.
- Nov. 12 EARLY TECHNIQUES. In the field with Akeley, Dossiter, Curtis, Wanamaker, and others. Their photographic goals, and how they achieved them. How early images were used to design Museum dioramas.
- Nov. 19 THE FINAL IMAGE. Techniques for creating a "good" image. Approaches for archival preservation of the image.

EXPLORING AMERICAN WILDERNESS AREAS

Five Monday afternoons starting
October 21
2:30-4:00 p.m.

or

Five Monday evenings starting
October 21
7:00-8:30 p.m.
Fee: \$30 (\$27 for Members)

Much of the remaining scenic grandeur and wildlife of the United States and Canada is restricted to federally preserved areas such as national parks, monuments and wildlife refuges. With rich color slides, this series introduces some of the most beautiful and diverse of these regions. Emphasis is on plant and animal life, their conservation and ecological significance. **Kenneth A. Chambers** is Lecturer in Zoology at the Museum and author of "A Country Lover's Guide to Wildlife."

- Oct. 21 GEYSER BASINS TO MANGROVE SWAMPS. Yellowstone and Grand Teton National Parks. Plant and animal life in subtropical Everglades.
- Oct. 28 DESERT WILDLIFE IN NEW MEXICO AND ARIZONA. Chiricahua, White Sands and Carlsbad Caverns.
- Nov. 4 WILDLIFE OF THE NEW YORK ADIRONDACKS.
- Nov. 18 WILD FLOWERS AND BIG GAME. Wild flower spectacular on Mt. Rainier, big game in the Canadian Rockies.
- Nov. 25 LAND OF THE TREMBLING EARTH. Okefenokee National Wildlife Refuge.

AMPHIBIANS AND REPTILES OF THE METROPOLITAN AREA

Four Thursday evenings starting
October 24
7:00-8:30 p.m.
Fee: \$25 (\$22.50 for Members)

Michael W. Klemens, Senior Scientific Assistant in the Museum's Department of Herpetology, presents four lectures illustrating the many species of these diverse groups of animals in this region. Some are widespread while others inhabit specialized environmental niches.

- Oct. 24 AMPHIBIANS AND REPTILES. A survey of the major families, with an emphasis on how local fauna fit into the worldwide distribution of these fascinating animals.
- Oct. 31 AMPHIBIANS OF THE METROPOLITAN AREA: HABITATS, REPRODUCTION AND HYBRIDS. Salamanders and frogs.
- Nov. 7 REPTILES OF THE METROPOLITAN AREA: HABITATS, REPRODUCTION AND CONSERVATION. Turtles, lizards, and snakes.

Nov. 14 ECOSYSTEMS, COMMUNITIES AND SURVIVAL. Many species of amphibians and reptiles are associated with specific habitats. As certain habitats disappear, many species are becoming scarce. Salt marsh, coastal, sand plain, and pine barren habitats. Fresh water. Limestone outcrops, lens and marl lakes. Upland habitats and mountain streams. Disturbed habitats — "the urban survivors."



ANIMAL DRAWING

Eight Tuesday evenings starting
October 22
7:00-9:00 p.m.
Fee: \$80 (materials not included)
Limited to 25 persons

Join a Museum artist to sketch a variety of subjects such as gazelles on the African plains, and timber wolves in the snowbound north.

After the Museum has closed to the public, students draw from the famed habitat groups as well as mounted specimens. **Stephen C. Quinn**, Senior Principal Preparator — Artist in the Museum's Exhibition Department, discusses drawing technique, animal anatomy, the role of the artist at the Museum, field sketches, and how exhibits are made. Individual guidance is given to each participant whether beginner or experienced artist.

The following exhibition halls serve as studios: Akeley Hall of African Mammals; Osborn Hall of Late Mammals, Hall of North American Mammals, Hall of North American Birds; Hall of Late Dinosaurs and Hall of Ocean Life.

IKEBANA: THE ART OF FLOWER ARRANGING

Four Monday evenings starting
October 21
7:00-9:30 p.m.
Fee: \$90 (materials included)
Limited to 20 persons

Judith S. Hata, artist and floral designer, presents four demonstration workshops on the techniques, history and art of the 1,200-year-old tradition of Ikebana. The art of flower arranging has spread from Japan to all parts of the world. Arrangements are limited only by the creativity of the student. They make use of a range of materials, from flowers, leaves and nuts to stone and, for the avant-garde, broken glass and even old automobile parts. The class stresses the rules for the art.

NAVAJO WEAVING

Six Tuesday evenings starting
October 22
7:00-9:30 p.m.
Fee: \$200 (includes cost of all materials)
Limited to 15 persons

Leading Navajo artist **D.Y. Begay** explores designs and patterns for Navajo textiles, which have become internationally known and appreciated for their balance and style. Ms. Begay, from Chinle, Arizona, works with the art of rug weaving as it has been passed down through the traditions of her family. Combining the customary elements of Navajo color and design, step-by-step guidance in construction of a traditional loom straight through to completion of a traditionally styled rug will give the student a working knowledge of this art form. Instruction is supplemented with slides and textiles.

Afternoon and Evening Lecture Series.

I would like to register for the following lecture series:

Course(s): _____

Day(s): _____ Time(s): _____

Price: _____ (Please note that discount prices shown apply only to Participating, Donor and Contributing Members.)

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please enclose a check payable to the American Museum of Natural History, and a self-addressed, stamped envelope and mail to: Afternoon and Evening Lecture Series, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.

Courses for Stargazers

Special and New

Mysteries of Halley's Comet. Very soon Halley's Comet will visit our skies again after a lapse of 76 years. What is a comet? Why do comets exist? What are they made of? What's so special about Halley's Comet, and why do we see it so seldom? These and many other questions will be explored in this new course. Six Thursdays beginning September 26. 6:30-8:40 p.m. \$60 (\$54 for Members).

The Solar System. This course, designed for young people, provides a brief overview of historical astronomy and an introduction to the many theories concerning the origin of the solar system, as well as the "geology" of the planets and their satellites. This year, a special emphasis will be placed on Halley's Comet — its rich history, how and where to observe it, and its importance to astronomers. Children age ten and over may take the course without a parent. Ten Saturdays, beginning September 28, 10:30 a.m.-11:20 a.m. \$25 (\$22.50 for Members)

Tried and True Astronomy

Introduction to Astronomy. A first course in astronomy designed to introduce many fascinating aspects of the universe to persons with no math or physics background. Topics include the Earth as a planet, the moon, the Milky Way, galaxies, quasars, and black holes in space. Section I: Eight Mondays beginning September 23, 6:30-8:40 p.m. Section II: Eight Tuesdays beginning September 24, 6:30-8:40 p.m. \$70 (\$63 for Members).

Stars, Constellations, and Legends. Introduces the lore of the sky. Using the Zeiss Planetarium Projector in the Sky Theater, this course identifies the prominent stars, constellations and other sky objects of both hemispheres, and discusses many of the myths and legends that have been told about them. Five Tuesdays beginning October 1. 6:30-8:10 p.m. \$50 (\$45 for Members).

How to Use a Telescope. An introduction to choosing and using a small amateur telescope. Topics include basic optics of telescopes, equatorial and altazimuth mountings, locating objects in the sky, and the use of charts and other aids for observing. Eight Wednesdays beginning October 2. 6:30-8:40 p.m. \$70 (\$63 for Members).

Astrophotography. A comprehensive survey of the techniques of photographing the heavens, both with and without a telescope. Subjects include the Earth's moon and other "neighbors" of the solar system, star fields, and deep sky objects. Seven Mondays beginning September 23. 6:30-8:40 p.m. \$65 (\$58.50 for Members).

Stars, Galaxies, Black Holes, and Cosmology. This course introduces the findings and concepts of modern astrophysics as they relate to the evolution of the universe. Topics include the life-cycles of stars, the structure of galaxies, quasars, and more. A knowledge of high school algebra is assumed. Eight Thursdays beginning September 26. 6:30-8:40 p.m. \$70 (\$63 for Members).

Aviation

Ground School For Private and Commercial Pilots. Introduction in preparation for the FAA written examination for a private or commercial license. This course will also help as a refresher for Biennial Flight Reviews, and survey some of the practicalities of flight training and aircraft ownership. Fourteen sessions on Mondays and Wednesdays beginning September 23. 6:30-8:40 p.m. \$175 (\$157.50 for Members).

Ground School for Instrument Pilots. Intended for those planning to take the FAA written examination for an instrument license. The course also provides updated information for instrument competency checks, and familiarizes VFR pilots with instrument techniques. Subjects covered include electronic navigation, weather analysis, aircraft performance, communications and radar procedures, and more. Fourteen sessions on Mondays and Wednesdays beginning September 30. 6:30-8:40 p.m. \$175 (\$157.50 for Members).

Meteorology

Clouds, Rainbows, and Weather. This basic course will focus on clouds, and the wonderful displays of light and color seen in the sky. This course is for anyone who has ever wondered why the sky is blue, or why red skies in the morning are sailors' warning, or why a ring around the moon means rain within twenty-four hours. Five Tuesdays beginning September 24. 6:30-8:40 p.m. \$50 (\$45 for Members).

Navigation

Piloting for Sailboat Operators. This intermediate course reviews material covered in *Navigation in Coastal Waters* and is geared to the sailboat navigator with some experience who wishes more information on position determination techniques and methods. Eight Thursdays beginning September 26. 6:30-9:00 p.m. \$95 (\$85.50 for Members).

Introduction to Celestial Navigation. This intermediate course is for those who have completed *Navigation in Coastal Waters* or who have equivalent piloting experience. Eight Wednesdays beginning September 25. 6:30-9:00 p.m. \$95 (\$85.50 for Members).

For Young People

The courses listed below are intended for the family, so that parents and children may learn together. They may be taken by children age ten and over without a parent. Much of the subject matter may not be appropriate for children under age 8. For additional information about these courses, call (212) 873-1300, ext. 206.

Introduction to the Sky. Meeting in the Sky Theater, this course discusses and illustrates the various stars and constellations, some of their lore, and some of the many interesting objects found in the sky. Ten Saturdays beginning September 28. 12:00-12:50 p.m. \$25 (\$22.50 for Members).

The Solar System. See "Special and New" above.

Stars, Black Holes, and Galaxies. Topics to be discussed include the evolution of the cosmos, star types, life cycles of stars, black holes, and quasars. Emphasis will be placed on the methods and instruments used by astronomers to collect information. Ten Saturdays beginning September 28. 9:30 a.m.-10:20 a.m. \$25 (\$22.50 for Members).

I would like to register for the following Planetarium course(s).

Name of Course _____

Price: _____

Class beginning: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Please mail this coupon with your check payable to the American Museum-Hayden Planetarium to: Hayden Planetarium, Central Park West and 79th Street, New York, N.Y. 10024. Registration by mail is strongly recommended, and is accepted until seven days preceding the first class. If space is available, registration in person is accepted until the second class. In the event that a student withdraws from a course, a fee of \$10 and charges for sessions attended will be made on all refunds of tuition. No refunds can be made after the second session. Courses may be cancelled without prior notice, with full refund of tuition. For additional information, call (212) 873-1300, ext. 206.

The Dream is Alive



Terry Hart, Mission Specialist, balances the heavy IMAX film magazine in zero gravity.

Travelling 200 miles above the Earth's surface, it takes the Space Shuttle about 90 minutes to circle our watery planet. On board, astronauts who have trained for many years to make this trip, create history as they navigate through space, conduct experiments, prepare for space walks — and brush their teeth.

As the Space Shuttle passes over the Alps and the boot of Italy, one can reflect that it was one of the great figures of the Italian Renaissance — Leonardo da Vinci — who asserted that it was possible for people to fly. Later, the Greek islands appear below, bringing to mind the adventurers from Homer's *Odyssey*, who sailed into the unknown.

The Dream is Alive, the Museum's newest Naturemax film, presents an experience of space that is both awesome and human. Relaxing before a screen that is four stories high and 66 feet wide, viewers spend time in space with the astronauts, watching the first space walk by an American woman, the deployment of scientific and communications satellites, the dramatic capture and repair of the Solar Max satellite, and the everyday dangers, routines, and humor of life at zero-g.

In addition to the space footage, *The Dream is Alive* includes sequences never before screened in a public theater, including a pilot's eye view of a Space Shuttle landing, and Space Shuttle liftoffs as seen from atop the launch pad tower.

The film also pays tribute to the people on the Earth below who are the brains and the heart of the space program — those

who build and repair the craft, train the astronauts, and watch for them in space, guiding and cheering their takeoffs and their returns.

The Museum's Naturemax screen is the biggest movie screen in New York City. Ten times the size of a conventional movie screen, the IMAX motion picture system immerses the audience in images and sounds of incomparable clarity and impact. Other Naturemax films at the Museum include *To Fly* and *Living Planet*.

The Dream is Alive can be seen every hour on the half-hour from 10:30 a.m. to 3:30 p.m. on Mondays, Tuesdays, and Thursdays. On Wednesdays, Fridays, Saturdays, and Sundays, there is an additional screening at 4:30 p.m. Double features are on Fridays and Saturdays at 6:00 and 7:30 p.m.

Naturemax Theater admission for single features is \$1.50 for children and senior citizens, \$3 for adults. Admission for double features is \$4.50 for adults, \$3 for children and senior citizens. Members receive a 50% discount on these prices at all times.

Tickets may be purchased in the Museum's 77th Street Lobby on the day of the showing. There are no reservations. Call (212) 496-0900 for additional information.

The Dream is Alive was produced and directed by Graeme Ferguson of Imax Systems Corp. of Toronto, Canada, with the cooperation and financial support of NASA, the Lockheed Corp. and the Smithsonian National Air and Space Museum.

Workshops for Young People

Through the Eyes of a Child: Introducing the Museum

Five or six-year-olds with one adult
Two Sundays
Section A: October 20 and 27, 10:15-11:45 a.m.

or
Section B: November 17 and 24, 10:15-11:45 a.m.
Fee: \$25 (\$23 for Members)

The Museum is a treasure house of wonderful things. A Museum educator will introduce you and a child to this exciting place. Rocks and minerals, plant and animal specimens, and beautiful objects help children to perceive the world around them. Presented by Marjorie M. Ransom of the Museum's Education Department.

Nature Activities for the Very Young

Grades 1 and 2
Four Sundays: October 20, 27 and November 3 and 10
Section A: 10:15-11:15 a.m.

or
Section B: 11:30 a.m.-12:30 p.m.
Fee: \$20 (\$18 for Members)
Children participate in fall na-

ture activities studying leaves, seed pods and cones. Through stories and craft activities they learn how plants and animals in our local area prepare for winter. Helps children become more aware of seasonal changes that occur in the city. Held in the Museum's Alexander M. White Natural Science Center. Presented by Mary Croft of the Museum's Education Department.

Introduction to Vertebrate Anatomy

Grades 6, 7, and 8
Six Sundays: October 20 and 27, November 3, 10, 17 and 24
10:30 a.m.-12:00 p.m.
Fee: \$30 (\$28 for Members)

Compare different biological systems in various vertebrate forms, from sharks to reptiles to birds and small mammals. Students contrast skeletal structures, muscles, and the circulatory, nervous, and reproductive systems. By using the "systems" approach, students learn how the animal functions as a whole. Helps develop laboratory skills. Presented by Dr. Betty Faber, entomologist.

Learning to Draw Animals

Grades 6, 7, and 8
Four Sundays: November 3, 10, 17 and 24
1:00-3:00 p.m.

Fee: \$25 (\$23 for Members)

Using a different exhibit hall each week as a drawing studio, students study the basic structures and shapes of animals. Beginning with skeletal anatomy, then adding important muscles, students see how an animal takes form. Quick sketching exercises give practice in drawing skills. Materials provided. Presented by Stephen C. Quinn of the Museum's Exhibition Department.

In Search of Human Origins

Grades 5 and 6
Two Saturdays: November 16 and 23
10:30 a.m.-12:30 p.m.
Fee: \$15 (\$13 for Members)

Trace our human ancestors through time. Look at the evidence scientists use in putting together a picture of human origins. Using the Museum's exhibition halls, slides, and hands-

on workshop experiences, students explore physical anthropology and human cultural development. Presented by Ann Prewitt, anthropologist.

HALF-DAY WORKSHOPS

All sessions listed below take place on Saturdays, from 10:30 a.m. until 1:30 p.m. The fee for each workshop is \$10 (\$9 for Members). Students should bring a bag lunch.

Origami

Grades 5 and 6
October 19

Origami is a Japanese word for the centuries-old art of folding single sheets of paper, without the aid of scissors or paste, to create objects. This introductory workshop includes the folding of a sailboat, a butterfly, and a strawberry, as well as special things decided by the students. Presented by Michael Shall, professional paper folder and volunteer origami specialist at the Museum.

World of Reptiles

Grades 5 and 6
October 19

Touch a live snake. Watch a lizard feed. Learn whether a turtle can breathe under water. Students observe and discover the amazing adaptations and behaviors of these animals. Explore habitats, defense, and locomotion. Includes slides and a visit to the Museum's Hall of Reptiles and Amphibians. Presented by David Brody of the Museum's Entomology Department.

Discovering the Microscopic World

Grades 6 and 7
October 26

or
November 9

An introduction to the use of the microscope. Discover the shape of a salt crystal. Compare different kinds of animal hair and look at plant cells. Students learn how to prepare their own

slides and view living organisms under the microscope. Presented by Ismael Calderon of the Museum's Education Department.

Secrets of the Sea

Grades 5 and 6
November 2

Explore the underwater world of sea animals — locomotion, smell, taste, and how they protect themselves. Students study a variety of marine animals, and learn about their diversity, behavior, and adaptations. Slides, films and the Museum's Hall of Ocean Life are all used in this survey. Presented by Lisa Bresloff of the Museum's Education Department.

Native American Games and Crafts

Grades 3 and 4
November 16

Students learn about Native Americans by playing the toss and catch game, and the double ball game. In a visit to the Eastern Woodlands and Plains Indians Halls they see other elements of the way of life of Indian people. Using plants to make natural dyes and spinning their own yarn, students learn how Native Americans respected the natural world. Includes a field trip across the street to Central Park to look at living plants. Presented by Rob Bernstein, Instructor at the New York Botanical Garden.

Leapin' Lizards: Amphibians and Reptiles

Grades 4 and 5
November 23

Learn how amphibians and reptiles live, what and how they eat, their methods of locomotion, how colors and patterns protect them, their adaptations to specific habitats, and how they reproduce. Through slides, films, tapes and activities in the Museum's Hall of Reptiles and Amphibians students gain an understanding of the behavior of these fascinating animals. Presented by Carol Townsend of the Museum's Herpetology Department.

I would like to register for the following Workshop(s):

Workshop(s): _____

Student's Last Name: _____ First: _____

Age: _____ Grade: _____ Daytime Phone: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

Amount Enclosed: _____

(Please note that only Participating, Donor and Contributing Members are entitled to discounts shown.)

Please mail a stamped, self-addressed envelope and your check payable to the American Museum of Natural History to: Workshops for Young People, Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.



Letter from the Files

The Powerful Sphere

About a month ago, while looking through old files, Melvin T. Hinkley of the Museum's Department of Invertebrates was delighted to discover the following correspondence between Mrs. Amelia Pickles, a curious woman from Massachusetts, and Dr. Chester Reeds of the Museum's Department of Geology and Paleontology. To preserve the flavor of the original correspondence, editing was kept to an absolute minimum.

December 18, 1933

Mrs. Amelia Pickles
Pleasant Street
North Pembroke, Mass.

Dear Sir:

A few weeks ago I read in the *Boston Sunday Advertiser* of meteors. Two weeks ago I was peeling an apple and, to my surprise, a bright sparkling object met my eye in the core between two black pips of the apple. It is the size of a small pea, and the color is of a bright golden yellow.

I held it in the palm of my hand, and it rolled about as if alive. I got my magnet out and put it near the object, and it rolled to the magnet. Half an hour after I had handled it, my arms were full of pins and needles for over ten minutes. My husband held it but it didn't have any effects on him. It is not as strong now as it was at first. I can handle it a little better. A neighbor was in my house at the time. I took it from the apple.

Please, can you give me an idea what this is? Is it a juggernaut as I read so much about? I am anxious to know. Waiting for a reply.

December 21, 1933

Dear Madam:

Your letter of December 18th addressed to this Museum has been referred to me for attention.

In reply thereto I beg to say that I am unable to give a conclusive opinion as to what your specimen might be without seeing it. If, therefore, you will send it to me, I shall be glad to examine it and write you my determination. The specimen will be returned to you, if you so desire.

Very truly yours,
Chester A. Reeds,
Curator

June 7, 1934

Mrs. Amelia Pickles
Pleasant St.
North Pembroke, Mass.

Dear Sir:

I wrote you a few months ago about an object I found in the core of an apple which was termed to be a meteorite. You asked me to send it to you for an opinion of my specimen, of what it is. Well, I have this object set in a ring which you will see. Now, this object gives off a taste of acid and a rough taste in the throat. Quite a few of my friends have tested this taste of acid in their mouths. It is always the same. I have had it in boiling water and we have all tasted the water this object has been in, and it is acid just the same. Also, when I wear the ring for any length of time, say a few hours, I get a dull feeling in my fingers and it goes up to my shoulder. I have just found out it is this object that is the cause of it. The sensation is a dull aching pain from the veins to my shoulder, and the veins in my hands turn dark.

I was told by a doctor that this object may contain a certain amount of radium. This doctor has lost his license and he wants me to let him have this object for experiments, but I won't trust him with it, although he has advised me not to wear it, as it is a serious thing to handle. If this object does contain radium, I may dispose of it to some hospital for its use. But I would really like to know what this object contains. Please return this ring as it is.

Please examine this for me and let me know what it contains. I will pay the cost of its return C.O.D. at this end. Please register this on return, and your charge for the examination, to Mrs. Amelia Pickles, Pleasant Street, North Pembroke, Mass.

June 14, 1934

My Dear Mrs. Pickles:

Your letter of the 7th instant and specimen under separate cover have been received and examined.

The specimen, which you have had mounted in a ring, has no doubt changed in color since you wrote me about it on December 18, 1933. In that letter you stated that you found it in the core of an apple between two black pips, and that the color was of a bright golden yellow. The color now is steel gray. In your last letter you say that the specimen has been placed in boiling water

and in the mouths of a number of people, and that in each instance it gives off an acid reaction. We have also observed that the specimen is round and magnetic as you have stated.

The specimen is not a meteorite, as you had supposed. It is one of the copper coated steel cored BB shots, which are being sold in large quantities to small boys for air rifles. Apparently, as in the Swiss legend of "William Tell," some boy had taken careful aim with his rifle and the bullet struck the apple in its center. I suspect that, if you would inquire further as to the history of this apple, which contained your bright and shining object, you would find that it once rested upon the head of a little girl. You have apparently overlooked this episode and endeavored to ascribe to the specimen diverse things which it does not possess. It does not contain radium, and your wearing of the ring should not produce a dull feeling in your fingers and shoulders, nor turn the blood in your veins dark. That is merely a mental assumption.

We are returning the mounted specimen to you as requested.

Very truly yours,
Chester A. Reeds,
Curator

Editor's Note: Chester Albert Reeds was a curator in the Museum's Department of Geology and Paleontology from 1927-1938. That department no longer exists. The areas of study it embraced are now divided among the Departments of Mineral Sciences, Vertebrate Paleontology, and Invertebrates.



Latin American Workshops



Huichol yarn painting.

For Adults

Andean Wind Instruments. Four Saturdays beginning September 14, 11:00 a.m. to 12:30 p.m. \$10 (\$9 for Members)
Wind instruments are at the heart of traditional Andean music. Learn about ancient and contemporary Andean wind instruments such as flutes, whistles and panpipes, and their cultural significance. Construct a wind instrument and learn how to play it. Guillermo Guerrero, Instructor.

Ancient Peruvian Highland Weaving September 29 and October 6, 11:00 a.m. to 4:00 p.m. \$10 (\$9 for Members)
This workshop is for the serious textile student to explore the 5,000-year-old tradition of

Peruvian weaving. Learn several warp-patterned weave (pick-up) techniques and the fundamentals of either spinning and plying (handspinning) or multi-strand braiding. Prior experience is advisable, but beginners are welcome. Two four-hour sessions include a slide lecture and the opportunity to view traditional textiles from Lake Titicaca. Elayne Zorn, Instructor.

Huichol Sacred Art: Yarn Painting. Four Saturdays beginning September 14, 11:00 a.m. to 12:30 p.m. \$10 (\$9 for Members).
Through sacred stories and hands-on learning, both parent and child (9 years and over) explore the sacred art of Huichol Indian yarn painting. Huichol culture serves as a background

for this four-session participatory workshop. Previous experience in painting is not necessary. Carmen Lowe, Instructor.

For the Entire Family

African Culture Through Dance. Four Sundays: September 15 and 22, October 6 and 20, 11:00 a.m. to 12:30 p.m. \$10 (\$9 for Members).
Dance is woven into the social, aesthetic, political, and religious activities of African and African-derived cultures. To the rhythms of African instruments, participants learn dance movements from Africa, Brazil, and Haiti, and explore their history as well as the feelings connected with them. For adult and youngster (9 years and over). Carolyn Clemons, Instructor.

Puerto Rican Mask Making. Four Saturdays beginning September 15, 11:00-1:00 p.m. \$15 (\$13.50 for Members).
Colorful masks are used in many celebrations in Puerto Rico such as La Fiesta de Loiza Aldea and La Fiesta de Ponce. As you make a paper mache mask from Ponce, learn about Puerto Rican customs and folklore which are derived from African, Spanish, and Taino Indian roots. For adult and youngster (9 years and over). Josephina Monter and Rafael Colon Morales, Instructors.

To register for the above workshops, please use the adjacent coupon. For additional information, call (212) 873-1300, ext 514 or 503.

Latin American Workshops

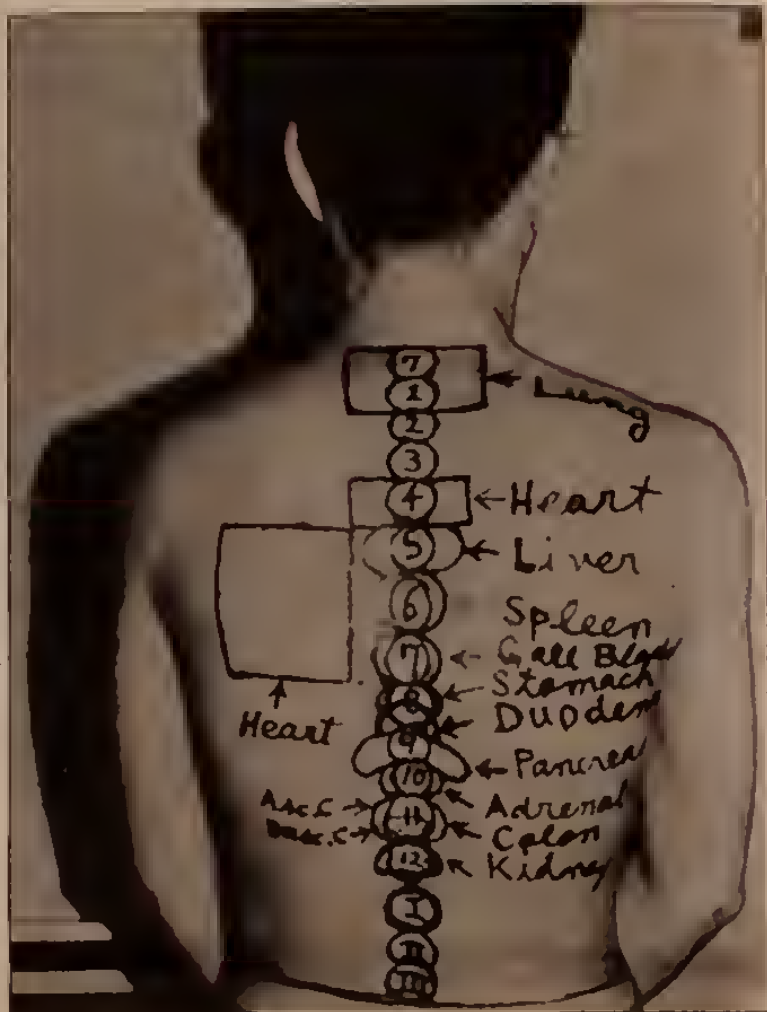
I enclose a self-addressed, stamped envelope together with a check or money order for \$_____ payable to the American Museum of Natural History.

Course: _____
Name (Last): _____ First: _____
Age of child (if applicable): _____
Address: _____
City: _____ State: _____ Zip: _____
Daytime Phone: _____

This coupon should be mailed to Latin American Workshops, Department of Education, American Museum of Natural History, 79th Street and Central Park West, New York, N.Y. 10024. Workshops fill quickly, so please mail early.

Acupuncture and Electrical Therapy Symposium

Wednesday, October 9, 7:00 p.m.
Main Auditorium. Free.



The ancient practice of acupuncture and related therapies have long been staples of medical practice in the Far East, but have only recently gained more widespread acceptance in Western countries. Recent years have seen a growing understanding of the use of acupuncture and electrical therapies in the diagnosis and treatment of diverse ailments.

The first International Symposium of Acupuncture and Electrical Therapy, to take place in New York October 9 through 13, will offer both scientists and the public a chance to learn about the latest developments in the field from some of the most renowned practitioners and researchers in the world.

The first session of the symposium will be held at the Museum on the evening of October 9 (to be followed by four sessions at the Penta Hotel). The Museum session will cover the following topics:

Diagnostic and Therapeutic Value of Acupuncture. A comparison of acupuncture and local anesthesia, including acupuncture technique and treatment strategies. Alfred Peng, M.D., F.I.C.A.E.

Treatment of Pain by Acupuncture. The origins of chronic pain, and treatments using acupuncture and electrotherapeutics. Professor Pekka J. Pontinen, M.D., F.I.C.A.E.

Acupuncture and Blood Pressure. Discussion of abnormal

blood pressure in the brain and extremities in the presence of normal readings in the arms. An evaluation of the therapeutic effect gained by treatment of hypertension with acupuncture, electrical stimulation, and laser beam therapy. Professor Yoshiaki Omura, M.D., Sc.D., F.I.C.A.E.

Multiple Sclerosis and Electrical Therapy. Techniques for improving patients' motor function by electrical stimulation of the spinal cord. Professor Albert Cook, M.D., F.I.C.A.E.

Acupuncture in the East. The historical development of acupuncture and new research directions in the field. Yoshio Manaka, M.D., Ph.D., F.I.C.A.E.

Beyond Traditional and Modern Methods: The New Synthesis. A discussion of new early-diagnostic techniques for examining the internal organs, which aid in the early detection of certain cancers and in the correct prescription of drug therapies for various illnesses. Professor Yoshiaki Omura, M.D., Sc.D., F.I.C.A.E.

This program is sponsored by the Museum's Department of Education and is made possible in part by a grant from the Helena Rubenstein Foundation. The symposium is free to all Museum visitors, with seating on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext 559.

Happenings at the Hayden



Space Shuttle Columbia observes Halley's Comet in 1986, in Halley's Comet: Once In A Lifetime.

Please note: The Hayden Planetarium will be closed for maintenance from September 3 through September 13.

Sky Shows

Hayden: The Golden Years and Comet Halley: Once in a Lifetime. Double Feature. Through November 24.

Fifty years ago, the Hayden Planetarium opened its doors. Since then, over 25 million people have marveled at the wonders of the night sky or taken trips into space in the Sky Theater. Hayden: The Golden Years looks back at those five decades of history to examine how the Planetarium and its programs have changed, and to highlight important discoveries in astronomy. The show also takes viewers into the future to ponder how our universe might be transformed in the next fifty years by projects such as permanent lunar bases and international space stations.

Comet Halley: Once in a Lifetime demonstrates where and when to look for Halley's Comet. It will also explore the nature of comets and discuss how scientists will use this special opportunity to study a comet in more detail than ever before.

Sky Show admission for

Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and Sky Show times, please call (212) 873-8828.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings.

7:30 and 10:30 p.m.: Heavy Laser. Featuring a combination show of The Police, Van Halen, The Who, and Rush.

9:00 p.m. Laser Floyd. With the music of Pink Floyd.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

School Programs

The Planetarium offers many programs for young children. For school information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.

Museum Notes

Special Exhibitions

Mountain of the Mist. Closes September 2. A photo exhibition about the Neblina expedition in Venezuela. Akeley Gallery.

The Art of Cameroon. Through October 15. This temporary exhibition includes ceremonial masks, pieces of jewelry and terra cotta, wood carvings and animal icons, most of which are from the Grassfields, a region of complex cultures and hierarchical institutions. Gallery 1.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the first-floor information desk. If you wish to join a free tour, please ask at an information desk for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For more information write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center and the **Leonhardt Peaple Center** are both closed during the month of September. They reopen in October.

Naturemax Information

Viewers can climb aboard the Space Shuttle in a brand-new Naturemax film entitled *The Dream Is Alive*.

In addition, two all-time favorites, *To Fly!* and *Living Planet*, are featured at select times on weekdays and weekends.

For more information about the spectacular new film, as well as a schedule of screenings, please turn to page 11.

The box office is located in the 77th St. lobby near the

Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$7.00 for cars and \$8.00 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings, except during the Margaret Mead Film Festival.

Museum Information

Museum Hours Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Coat Checking. Daily from 10:00 a.m. to 5:30 p.m. in the basement. Rate is \$.50 per item, through September 30.

Southwest Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwest Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300. Future issues of *Rotunda* will feature the history and the beauty of this fascinating department of the Museum, as well the researchers who study the great variety of life forms found in Arizona's Chiricahua Mountains.

Looking Ahead

Celebrate Indian Culture. Two exhibitions opening in October will celebrate the cultural diversity, wildlife, and natural beauty of India.

Tiger Tiger Burning Bright: An Indian Wildlife Portfolio. opening October 1 in the Naturemax Gallery, will present 64 exquisite color photographs of Indian wildlife.

Vijayanagara: Where Kings and Gods Meet will open October 23 in the Akeley Gallery. This photographic exhibition will feature the temples, palaces, sumptuous pavilions, and other aspects of Vijayanagara, the greatest of all ruined cities in southern India.

Masterpieces of the American West. From early painters of Indian life through landscape and Romantic painters, and on to modernists such as Georgia O'Keeffe, the unique Anschutz Collection presents powerful visual images of the American West. Native American and historical objects will accompany the paintings in this exhibition, scheduled to open November 27.



The Asiatic wild ass is one of India's animals to be featured in *Tiger Tiger Burning Bright: An Indian Wildlife Portfolio*. See "Looking Ahead," above.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2		4	5	6	7

Due to a generous grant from Mobil, the Museum is open until 9:00 p.m. on Friday and Saturday evenings, when admission is free from 5:00 to 9:00 p.m.

14 11:00 a.m. Latin American Workshops — Andean Wind Instruments and Huichol Sacred Art courses begin. Registration required. Page 14.

New moon

12 6:30 p.m. Margaret Mead Film Festival. Complete schedule pages 7-10.

Members of the Papua New Guinea Adventure arrive in the Trobriand Islands. Discovery Tour information: (212) 873-1440.

11 6:30 p.m. Margaret Mead Film Festival. Complete schedule pages 7-10.

10 6:30 p.m. Margaret Mead Film Festival. Complete schedule pages 7-10.

9 6:30 p.m. Margaret Mead Film Festival. Complete schedule pages 7-10.

20 Members of the Black Sea and Aegean Odyssey Tour arrive in Athens. Discovery Tour information: (212) 873-1440.

19 7:30 p.m. Questioning The Animals. Members' Program. Main Auditorium. Free and open only to Members. Reservations required. Page 1.

18 6:30 p.m. Volunteer Origami sessions begin. Registration required. Page 2.

16 Moon at Perigee

15 11:00 a.m. Latin American Workshops — African Culture through Dance and Puerto Rican Mask Making courses begin. Registration required. Page 14.

1:00 p.m. N.Y. Paleontological Society. Room 426.

2:00 p.m. American Cetacean Society. Room 319.

28 10:00 a.m., 12:30 and 2:30 p.m. Prospecting in Brooklyn. Members' Tour of Prospect Park. Registration required. Page 3.

Full Moon

27 Members of the East African Safari 2 arrive in Kigali, Rwanda. Discovery Tour information: (212) 873-1440.

26

25

24 8:00 p.m. Linnaean Society. Kaufmann Theater.

8:00 p.m. Met Grotto; National Speleological Society. Room 129.

23 Courses for Stargazers begin. Complete listing, page 11.

22 2:00 p.m. Visual Metaphors: Royal Art of the Cameroon Grassfields. Kaufmann Theater. Free. Page 2.

Autumnal Equinox

30

29 11:00 a.m., 1:00 and 3:00 p.m. FACES Film Festival. Films for young people. Free and open only to Members. Registration required. Page 2.

11:00 a.m. Latin American Workshops — Ancient Peruvian Highland Weaving course begins. Registration required. Page 14.



Young people learn how to analyze gases in Stars, Black Holes, and Galaxies. Page 11.

September 1985

American Museum of Natural History

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History

Vol. 10, No. 9 October 1985

Celebrate India

Celebrate India at the Museum this month with two new photographic exhibitions (page 4), dance from South India (page 5), a special Members' tour (page 4) and weekend activities at the People Center (Calendar).

Happy Birthday Hayden Planetarium

Photographs from the Museum's archives celebrate the Planetarium's golden anniversary.
Page 3

Post-Halloween Ghosts

Join Laura Simms and Steven Gorn for their fifth year of performances here at the Museum, and enter a world of ghosts, ghouls, and shadows.
Page 7

People and Animal Behavior

Stephen J. Gould, Sarah Hrdy, and B.F. Skinner join together to give a public lecture about animal behavior and what we can learn from studying it. Special sessions for scholars are also part of this year's Third Annual T.C. Schneirla Conference.
Page 10

Come Into My Parlour

Wednesday, November 6, 7:30 p.m.
Main Auditorium
Free for Members, \$3.00 for non-members

"Will you walk into my parlour?"
Said the spider to the fly.
"Tis the prettiest little parlour
That you ever did spy."

— Mary Howett, "The Spider and the Fly"

Spider webs may be works of incredible design, but they are treacherous parlours indeed! The strands of the web are covered with a sticky substance that traps unsuspecting insects and seals their fate as part of the spider's menu.

Members are invited to venture into the spider's world, when the noted nature photographer and filmmaker Dr. John Cooke presents his film *Come into*

My Parlour for our November Members' program. The film shows spiders as they spin webs of all shapes and sizes, hunt and trap for prey, mate, moult, lay their own eggs, and become unsuspecting hosts for the eggs of others.

One amazing scene captures the ogre faced spider as it throws its net over its prey, while another scene depicts the life of the European water spider, a creature that creates its own diving bell to survive underwater.

Spider courtship can be a dangerous business. One sequence illustrates how a male spider may just as easily end up a meal as a mate for its larger female counterpart.

Cooke was an Associate Curator in the Museum's Department of

Entomology from 1969 to 1973. He then began work as a naturalist and filmmaker with Oxford Scientific Films, the world's foremost natural history photographic studio.

Come Into My Parlour was filmed in Arizona, Trinidad and England. It has been shown on national television both here and in England. Cooke will introduce the film, and answer questions from the audience afterwards.

Members are invited to arrive early to view special displays of spider, scorpion, tarantula, and other arachnid specimens that have been set up by staff from the Museum's Department of Entomology. To register for the program, please use the October Members' Programs Coupon on page 7.

Happenings at the Hayden

Sky Shows

Hayden: The Golden Years and *Halley's Comet: Once in a Lifetime*. Double Feature. Through late November.

Fifty years ago, the Hayden Planetarium opened its doors. Since then, over 25 million people have marveled at the wonders of the night sky or taken

trips into space in the Sky Theater. *Hayden: The Golden Years*, narrated by Charlton Heston, looks back at those five decades of history to examine

how the Planetarium and its programs have changed, and to highlight important discoveries in astronomy. The show also takes viewers into the future to ponder how our universe might be transformed in the next fifty years by projects such as permanent lunar bases and international space stations.

Halley's Comet: Once in a Lifetime, narrated by William Shatner, demonstrates where and when to look for Halley's Comet. It also explores the nature of comets and discusses how scientists will use this special opportunity to study a comet in more detail than ever before.

Sky Show admission for Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children. For non-member prices and Sky Show times, please call (212) 873-8828.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and

sound on Friday and Saturday evenings. An old-time favorite, *Laser Zeppelin*, has returned to the Planetarium.

7:30 p.m.: *Heavy Laser*. Featuring music of The Police, Van Halen, The Who, and Rush.

9:00 p.m. *Laser Floyd*. With the music of Pink Floyd.

10:30 p.m.: *Laser Zeppelin*. With the music of Led Zeppelin.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

School Programs

The Planetarium offers many programs for young children. For school information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.



A space station of the future in *Hayden: the Golden Years*.

Fall Courses

This month, learn about ancient civilizations, cross-cultural healing, reptiles and amphibians, American wilderness areas, and a host of other topics in the Education Department's *Afternoon and Evening Lecture Series*.

Most of the courses begin in late October, so there is still time to write for your free brochure to the Department of Education, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Or, call (212) 873-7507. There is also a complete listing of courses in the September issue of *Rotunda*.

A few of the highlights are:

Sumer: Roots of Modern Civilization. Three Tuesday evenings beginning October 22. \$20 (\$18 for Members). Three specialists on the ancient Sumerian civilization's architecture, royal tombs, art styles, and social life.

Culture, Health and Illness. Six Tuesday evenings beginning October 22. \$35 (\$31.50 for Members). How is health, and the way we perceive it, influenced by cultural and historical factors? This course takes a look at how other cultures deal with illness and its treatment, and how we can apply such concepts to our own culture.

India: Politics and Civilization. Two Monday Evenings (October 21 and 28) 7:00-8:30 p.m. \$15 (\$13.50 for Members). From contemporary scenes of India to the beginnings of Indian civilization in the Indus valley, this course explores the history, religions, and traditions that make India the fascinating country it is.

Other courses offered this Fall include *African Mammals*, *Magic Witchcraft and Sorcery*, *Amphibians and Reptiles of the Metropolitan Area*, and *Films from the Museum's Archives*.

We hope to see you at the Museum this season.

Volunteers

This Autumn, join the more than 300 people who volunteer at the Museum each year. The Museum currently seeks volunteers who are interested in being Museum Highlights Tour guides, creating arts and crafts with children, cataloging and numbering artifacts and specimens, and working in scientific

and administrative offices. These are just a few of the areas where volunteers are needed.

Volunteers are a respected and vital part of the Museum, and always have been — since the Museum first opened its doors, over one hundred years ago. They currently represent ten percent of the Museum's

work force.

While weekend volunteers are always welcome, the Museum especially needs weekday volunteers. For additional information, and an application form, interested *Rotunda* readers can call the Volunteer Office at (212) 873-1300, ext. 538.

ROTUNDA

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The Museum receives substantial support from a number of major sources. We are particularly grateful to the City of New York which owns the Museum buildings and provides funds for their operation and maintenance; and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 300 corporations, 60 private foundations, 475,000 members, and numerous individual contributors.



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Happy Birthday Hayden Planetarium

On May 28, 1934, Mr. Charles Hayden turned the first shovelful of earth at your ground breaking ceremony. Now — 50 golden years, millions of visitors, and scores of sky shows later — you are more exciting than ever before. These photographs from the Museum archives celebrate what you were. Thousands of visitors each year celebrate what you are.



Coles and Bennett/AMNH

The Planetarium Book Shop in 1936.



Bolan/AMNH

A crowd gathers outside the Hayden Planetarium after Sputnik I, in 1957.



Rice and Bennett/AMNH

Dr. Clyde Fisher stands by the Planetarium's original Zeiss projector, in 1935.



H. Rice/AMNH

Schoolboys observe a representation of the night sky inside the Planetarium's dome in 1934.

Each issue of *Rotunda* provides a special listing of regular events and special programs at the Hayden Planetarium. This month's *Happenings at the Hayden* column is on the opposite page. In addition, turn to page 7 for information on *Here Comes Halley's*, co-sponsored by the Hayden Planetarium and the Membership Office.

India in the U.S.

Tiger, Tiger Burning Bright

Tuesday, October 1 through Sunday, January 12
Naturemax Gallery

Of the more than 500 species of mammals and 1,200 species of birds to be found in India, at least 50 are now thought to be endangered. Nevertheless, India is one of the greatest zoological strongholds of the world. In recent years the Indian government has launched a major wildlife conservation program to ensure that it will remain so.

The Museum's new temporary exhibition *Tiger, Tiger Burning Bright: an Indian Wildlife Portfolio* includes 64 outstanding photographs that document the country's success

in preserving its animals and their natural habitats. The exhibition will feature the Indian tiger, which has recently made a comeback from threatened extinction.

Among the other Indian animals that have been so beautifully captured on film by the nine photographers represented, are the spotted deer, leopard, Indian rhinoceros, black buck, lion, Asian elephant, Siberian crane, greater flamingo, Indian pond heron, rock python, water buffalo, and sloth bear.

The photographs, the largest of which measure 48 by 36 inches, emphasize the beauty and variety of Indian animals. Their underlying message is to caution that many of these animals are still perilously close to extinction.

The Museum is presenting *Tiger, Tiger Burning Bright* as part of the national "Festival of India" celebrations. Also in celebration of this festival, *Vijayanagara: Where Kings and Gods Meet* will be on view in the Akeley Gallery beginning October 23 (below).



Found in southern India, the slender loris moves slowly through the trees at night.

Vijayanagara: Where Kings and Gods Meet

Wednesday, October 23 through Sunday, January 26
Akeley Gallery

Vijayanagara, the greatest of all ruined cities in Southern India, was conceived as a cosmic city some 600 years ago. Its planners modeled Vijayanagara's urban plan and ceremonial activities on the mythical city of Ayodhya, the home of Rama, the hero-god.

When Vijayanagara was in its prime during the 16th century, it was known as one of the largest, most beautiful, powerful, and wealthy cities in the world. It was the center of Hindu learning, religious thought, literature, and music.

Vijayanagara: Where Kings and Gods Meet, a new temporary exhibition, will feature forty photographs and architectural drawings of this best-preserved of India's Hindu capitals. Elaborate Hindu temple complexes and palaces, sumptuous pavilions and towers, and even the

king's stately elephant stables will be subjects of this exhibition. Also included will be maps of the city, its network of roads, and its hydraulic system, as well as two examples of contemporary sculpture.

The *Vijayanagara* exhibition reflects the work of the Archaeological Survey of India, the Department of Archaeology and Museums of the Indian State of Karnataka, and an international group of archaeologists, architects, and students led by anthropologist John M. Fritz and architectural historian George Michell.

The photographs are by John Gollings, a leading architecture photographer in Australia, and the drawings and illustrations are by architecture and archaeology students from India, Australia, Europe and the United States.



The Viruparsha Temple at Hampi.

Members' Tour of the Month

India: Land of Contrasts

Free, and open only to Members

India is an ancient and diverse civilization with a culture and history 5,000 years old. It is a land steeped in ancient Hindu tradition, with small villages that are rich in distinctive festivals and crafts.

India is also a rich and vibrant democracy, with a gross national product ranking eighth in the world. One of the world's oldest cultures, it is the second most populous nation in the modern world.

This month Members can

learn more about the duality that is India, in a Members' tour which includes two different exhibitions: *The Hall of Asian Peoples* (a permanent Museum Hall), and the temporary exhibition *Vijayanagara: Where Kings and Gods Meet* (described above).

Accompanied by a Museum Highlights Tour guide, take a look at one of the world's oldest civilizations: the Harappan of the Indus valley. Glimpse the masks and puppets used in the

telling of the *Ramayana*, the Hindu epic which sets forth the model of behavior for a man as husband, son, and father, and for a woman as wife. Join the guests at a village wedding in central India. View the art and architecture of Vijayanagara, the last of the great Hindu empires.

To register for the Members' tour *India: Land of Contrasts*, please mail in the adjacent coupon. The coupon lists the dates and times of the tours.

India: Land of Contrasts. Open to Members only. Please indicate a first, second, and third choice of dates and times.

Sunday, November 3	10:30 a.m.	11:30 a.m.
Saturday, November 9	10:30 a.m.	11:30 a.m.
Sunday, November 10	10:30 a.m.	11:30 a.m.
Wednesday, November 13	6:00 p.m.	7:00 p.m.
Saturday, November 16	10:30 a.m.	11:30 a.m.
Wednesday, November 20	6:00 p.m.	7:00 p.m.
Sunday, November 24	10:30 a.m.	11:30 a.m.

Number of tickets: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime phone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: India Tour, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Registration closes October 20.

Bharata Natyam: Dance Drama of South India

Saturday, October 5
2:00 p.m. and 4:00 p.m.
Kaufmann Theater
Free

Accompanied by a quartet of skilled musicians from her home town of Bangalore, India, Susheela Mehta will perform several dances in the Bharata Natyam style, an ancient dance form from South India. Among the dances to be performed are Pushpanjali, an invocatory piece in which the dancer offers flowers to Lord Nataraja, the god of dance, and Shabdham, an interpretive dance depicting

a woman's dream of marriage with Lord Shiva.

Susheela Mehta is a gifted dancer who has performed throughout India, as well as in Hong Kong and Tokyo. This program, sponsored by the Education Department, marks her American debut at the Museum.

Seating is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 559.



Susheela Mehta performs dances from the south of India.

Celebrate India at the People Center

Turn to the calendar on page 12 for People Center dates and activities.



Varied aspects of Indian life and culture are featured this month. (L) The traditional mixes with the modern in New Delhi. (R) Hindu women bathe and pray in Puri, Orissa.

Latin and Black Perspectives on Contemporary Living

Five Latin American films, all made in 1982, explore problems of contemporary life in this program series, sponsored by the Museum's Education Department. Each program is free and open to both Members and non-members.

Friday, October 18, 7:00 p.m. Kaufmann Theater.
A Man, When He Is A Man. This film, by Valerie Sarmiento, is an imaginative documentary on machismo shot in Costa Rica. Sarmiento's combination of subtle and not-so-subtle images add up to a powerful in-

dictment of macho attitudes.

And *What Does Your Mother Do?* Produced and directed by Cine Mujer, this is an ironic and humorous look at housework. Filmed to the soundtrack of a well-known salsa song, *And, What Does Your Mother Do?* follows a day in the life of a Colombian woman.

Following the above films, there will be a discussion with Maria Rios, M.S., lecturer, and Joao Nunes, M.D., Psychiatrist. Moderated by Judith C. White, M.S.W. Each participant is of the Postgraduate Center for Mental Health.

Sunday, October 20, 2:00 p.m., Linder Theater.

Carmen Carrascal. This is the story of a woman's determination and struggle to express herself as a mother, wife, and artisan in an isolated, rural area of Colombia. Directed by Sara Bright and produced by Cine Mujer.

Mujeres del Planeta. Women in a shantytown outside Lima, Peru convey their dignity as they organize for better living conditions. By Maria Barca.

Following *Carmen Carrascal* and *Mujeres del Planeta*, Judith C. White, M.S., C.S.W. will

moderate a discussion with Dr. Rosa Maria Gil, Lecturer, and Maria Rios, M.S. All are of the Postgraduate Center for Mental Health.

Sunday, October 27, 2:00 p.m., Kaufmann Theater.

Home of the Brave. Actor James Edwards portrays a sole Black American soldier who suffers a mental crisis as the result of events inside enemy territory. Produced by Stanley Kramer and directed by Mark Robson.

Home of the Brave will be followed by a discussion featuring

Donald Bogle, film historian and author of a prize-winning book on Black entertainers; Quinton Wilkes, Ph.D., psychoanalyst and psychotherapist, and Judith C. White, M.S., C.S.W., both of the Postgraduate Center for Mental Health.

Seating for all films is on a first-come, first-served basis. The series is presented by the Museum's Education Department in conjunction with Women Make Movies and the Public Department of Education of the Postgraduate Center for Mental Health.

Another Side of the Rainbow

Sunday, November 24

11:00 a.m., 1:00 and 3:30 p.m.

Free for Members, \$2.50 for non-members

African and Native American legends, animal evolution, and the alphabet will all be interpreted through modern dance when the Rainbow Road Dancers present *Another Side of the Rainbow*.

This family Membership program, geared for children aged

five to twelve, begins with a Zuni story about the fate of a coyote who wished to dance with the stars. In another piece particularly suited to this year of the drought, Aio the Rainmaker recounts the African tale of a person with magical rainmaking power. *Alpha Boogie*, set to

contemporary music, presents the alphabet as you have never seen it before. And *Origins* is a dance inspired by the Museum itself. Dinosaurs, birds, and other animals appear as the development of life on earth is traced. The program concludes with a Hoedown, a country and west-

em favorite in which everybody is invited to participate.

The Rainbow Road Dancers is a modern dance group that specializes in performances for children and the young at heart. Costumes, music, special effects, and audience participation are an integral part of their

work. They have performed at Belvedere Castle, the Vital Arts Center, and numerous schools and community centers throughout the metropolitan area.

To register, please use the October Members' Programs Coupon on page 7.

Natural Curiosity



A steadfast denizen of New York City.

Several Members have noticed that one of the questions asked in the original *Natural Curiosity* column has not yet been answered. Roughly paraphrased, that question is "Why do we see so many adult pigeons all over the city, but never baby pigeons?"

According to Mr. John Bull of the Department of Ornithology, pigeons raise three, four or five broods each year. The female lays two eggs. Nests are built of loose twigs and are placed high up on windowsills and building cornices.

Within 14 days the eggs hatch, and in about 16 days the young pigeons begin to experiment leaving their nest. By the time a month has passed, they are out and on their own.

We seldom see baby pigeons because the nests are constructed so high, and because baby pigeons do not remain babies for long.

Occasionally, however, it is possible to spot baby pigeons. Several Museum employees have reported seeing pigeon nests on Museum window ledges during the past few months.

Members who are particularly interested in city-dwelling animals may want to consult Dr. Helen Ross Russell's delightful book *Urban Critters*. Among the pigeon facts it contains are:

Pigeons mate for life.

The male and female take turns setting on the eggs.

The "pigeon milk" fed to baby pigeons is white, and

chemically similar to mammalian milk. Members of the pigeon family are the only birds known to produce such a substance.

Pigeons that live in the Times Square district wake up in the evening when the city's other pigeons are preparing to sleep, and vice versa. The bright lights and night life of Times Square are responsible for this behavioral flip-flop.

Do you have a question that pertains to the natural world? Mail it to *Natural Curiosity*, Membership Office, American Museum of Natural History, 79th Street at Central Park West, New York, NY 10024.

Ruth Q. Leibowitz

Participating, Donor and Contributing Members are invited to a special Behind-the-Scenes Tour of the Department of Ichthyology

Sunday, November 17, and

Thursday, November 21,

\$7 and open only to Participating, Donor, and Contributing Members

The Museum's Department of Ichthyology contains a collection of more than a million fishes. On a given year, over 30,000 specimens may be received.

The Department, however, is far more than the collections it contains. Some of the field work

and laboratory work in progress by Museum ichthyologists includes studies of juvenile fishes, electric interactions, anchovy snouts, and fossil sharks.

Next month, Members can meet five Museum ichthyologists in the laboratories and offices where they work, to learn

about fish bones, behavior, and ways of being. The scientists will speak of their research, show Members specimens from the collection, and answer questions about the creatures of the deep. To register for this season's Behind-the-Scenes Tour, please use the adjacent coupon.



A Museum catfish peers out of its tank.

Behind-the-Scenes Tour of the Department of Ichthyology. \$7.00 and open only to Participating, Donor, and Contributing Members.

Tours will leave at fifteen-minute intervals. We will send you a confirmation card by mail indicating the exact time your tour will start. Please indicate a first, second, and third choice.

_____ Sunday, November 17 between 10:30 a.m. and noon.
_____ Sunday, November 17 between 1:00 and 2:30 p.m.
_____ Thursday, November 21 between 5:15 and 6:00 p.m.
_____ Thursday, November 21 between 6:30 and 7:30 p.m.

Number of tickets at \$7.00 each: _____
Amount enclosed for program: \$ _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to FISH, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.

Here Comes Halley's

Thursday, October 17
7:30 p.m.
Main Auditorium
\$3.00 for Members, \$6.00 for non-members

In 1704 Edmond Halley calculated that several comets which had been observed at approximately 76-year intervals were actually one and the same. When the comet reappeared in 1758, as Halley had predicted, it was named after him.

In 1986, Halley's comet will come our way again. As it crosses the plane of Earth's orbit in March, space probes from several different countries, including the Space Shuttle, will study and analyze its motion, structure, magnetic fields, and other aspects of this celestial

voyager. Then, as Halley's comet heads back to the far reaches of the solar system, the Hubble Space Telescope will follow it as it passes beyond the reach of detectors on the ground.

What do we already know about Halley's comet, and what do we hope to learn? Interweaving scientific fact, history, and lore, Dr. Stephen P. Maran will discuss this famous comet and what it can teach us not only about comets, but about the origins and workings of the universe.

Maran is a senior staff scientist at NASA's Laboratory for Astronomy and Physics, and the Sky Reporter columnist for *Natural History* magazine.

Prior to the lecture, the American Museum Restaurant will be open for dinner. In addition, refreshments will be served in the Hall of Northwest Coast Indians, compliments of The Glenlivet and *Natural History* magazine.

To register for *Here Comes Halley's*, please use the adjacent October Members' Programs Coupon.

Ghost Stories

Saturday, November 2
Family Program: 1:30 and 3:30 p.m. (children 8 and over)
Adult Program: 7:30 p.m.
See coupon for ticket prices.

Laura Simms, internationally renowned storyteller, and musician Steven Gom are back at the Museum for the fifth year by popular demand.

This year's *Ghost Stories* program features stories which are at once eerie and profoundly moving. With an uncanny understanding of the depth of traditional myth, folklore, and epic, the performers will present

"The Girl who married a Ghost" (a chilling Northwest Coast Indian story), "The Ragpicker" (a weird, supernatural Mayan tale), "The Two Ducks" (a ghost story from Japan), and other frightening, humorous, surprising, refreshing and entertaining stories.

Laura Simms is one of the most highly respected storytellers in America. She and

Steven Gom have performed together for theater audiences throughout the world. They have created this year's program especially for the Museum.

Prepare for the invisible to become visible, and for the ordinary to become magic. To register for *Ghost Stories*, please use the adjacent October Members' Programs Coupon.



Laura Simms tells stories of enchantment.

October Members' Programs Coupon

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total Amount Enclosed: _____

Please make check (if applicable) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: October Members' Programs, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.

Halley's Comet. Thursday, October 17. \$3.00 for Members, \$6.00 for non-members. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to one. Additional tickets are \$6.00.

Number of Members' tickets at \$3.00 each: _____
Number of tickets at \$6.00 each: _____ \$ _____
Amount enclosed for program: _____

Ghost Stories. Saturday, November 2. Members' tickets are \$3.00 for adults, \$2.00 for children. Non-members' tickets are \$4.00 for both adults and children.

Please indicate a first and second choice, if possible.

_____ 1:30 p.m. _____ 3:30 p.m. _____ 7:30 p.m.

Number of children's tickets at \$2.00 each: _____
Number of adult tickets at \$3.00 each: _____
Number of non-members' tickets at \$4.00 each: _____
Amount enclosed for program: _____ \$ _____

Come Into My Parlour. Wednesday, November 6. Free for Members, \$3.00 for non-members. Participating, Donor, and Contributing Members are entitled to four free tickets. Associates are entitled to one. All additional tickets are \$3.00.

Number of free Members' tickets: _____
Number of tickets at \$3.00 each: _____ \$ _____
Amount enclosed for program: _____

Another Side of the Rainbow. Sunday, November 24. Free for Members, \$2.50 for non-members. Participating, Donor and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$2.50.

Please indicate a first and second choice of times.

_____ 11:00 a.m. _____ 1:00 p.m. _____ 3:30 p.m.

Number of free Members' tickets: _____
Number of tickets at \$2.50 each: _____ \$ _____
Amount enclosed for program: _____

Please look over your coupon before mailing it to the Museum. Have you included your name and address? Does the total amount enclosed equal the sum of the amount enclosed for each program? Thank you for checking.

Polynesian Nostalgia



Bora Bora — an island visited by Members of the most recent Discovery Tour to Polynesia.

Dr. Harry L. Shapiro is Chairman Emeritus of the Department of Anthropology at the American Museum of Natural History, having retired in 1970. He joined the staff in 1926 and has pursued his anthropological researches in many parts of the world, particularly in Polynesia where he has participated in about ten expeditions. Last March, he was a lecturer on the Museum's Discovery Tour to Polynesia, a trip that stimulated the following memories.

As I now look back on it, it was neither surprising nor unusual that I fell in love with Polynesia on my first trip there, and have had a deep nostalgia for it ever since.

My first encounter with this romantic part of the Pacific came in 1923 when I had just completed my undergraduate career at Harvard and was embarking on my graduate course. For my first research project, I had chosen to undertake a genetic study of the descendants of the mutineers of the *Bounty* and their Tahitian wives, who had settled on Pitcairn Island. Their progeny still lived there, in isolation from the rest of the world. This was to be one of the first genetic studies of inter-racial miscegenation.

Unless you had your own schooner, Pitcairn was (and still is) difficult to reach. After exploring various possibilities, I made my way to Panama where I kept tabs on all the boats entering the canal, bound for New Zealand or Australia. I was hoping to find one that would stop at Pitcairn en route to its destination.

After two weeks, the *Paparoa* — an old decrepit tramp steamer — arrived from England. She was headed for New Zealand, and scheduled to pick up some freight waiting in Panama for a steamer to transport it to Pitcairn.



Weaving a hat on Pitcairn, 1935.

There were a few passengers on board the *Paparoa*, and the captain agreed to take me along. After a few weeks at sea, the captain took me aside to inform me that he could not, after all, drop me at Pitcairn. It was not an official port of call and he was liable to incur a penalty if he allowed me to land there.

In my distress, I discussed my quandry with a kindly old gentleman who was returning to Australia after retiring from his business in Chile. I had not come this far to be thwarted, and my time and funds gave me no alternative but to jump ship. With the assistance of my Australian friend, I made arrangements with a few of the crew members to hide me and my luggage in one of the native dories and to tow me ashore when we anchored off the island.

Alas — a few hours before sighting Pitcairn a heavy storm arose, and the captain announced that he was heading away from the island, since anchorage was hazardous under storm conditions. We sailed on eventually, to reach New Zealand, my first sight of the Polynesian islands and of the Maori inhabitants.

In spite of my disappointment on missing Pitcairn on my first trial, (I did reach Pitcairn in 1934 aboard the *Zaca*, a schooner provided by Tempelton Crocker for Museum research in the Pacific), I later found my way to Norfolk Island. It turned out that, as a result of overcrowding on Pitcairn, more than half of the mutineers' descendants had settled on Norfolk Island in the mid 19th century. I was able to do my work after all.

Six years later, in 1929, I spent a year studying the racial and physical characteristics of the Polynesian populations of the Society, Marquesan, and Tuamotuan archipelagoes. These islands varied from the volcanic, which were mountainous and spectacu-

lar, to the low-lying coral atolls of the Tuamotuan.

I visited dozens of these islands. If I needed any reinforcement of my earlier enchantment with the islands of the South Pacific, these experiences provided it. The lofty mountain peaks with their deep, lush valleys on the volcanic Society Islands, and particularly in the Marquesas, formed a romantic and picturesque background for the native culture that had existed there and still survived to some degree. And even the low coral atolls with their rings of palm trees surrounding the placid lagoons were, in their own way, enchanting.

This enchantment, which has remained with me all these years, is not peculiar to me. A long and distinguished line of similar devotees reaches back to the first European discoverers of Polynesia such as James Cook and Louis Bougainville, and continues on to Herman Melville, Robert Louis Stevenson, Henry Adams, Pierre Loti, Antoine de Gauguin, and Jack London.

During my visits, I met many Europeans and Americans who had come on their first visits to these islands, and had never left them. I first encountered these immigrants in 1929 at the Bougainville Club in Papeete, where European and American exiles congregated.

My host was Frank Stimson, a retired architect who had lived in San Francisco, but had elected to remain in Tahiti when, on a cruise to New Zealand, his ship stopped there. Among others I met at the club were Charles Nordhoff and James Hall, both of whom had retired to Tahiti after serving in the U. S. Air Force during World War I. Like Stimson, they too found the charm of Polynesia impossible to resist. It was at this meeting that I told them of my study of the Pitcairn Islanders. As a result, they wrote to their editor on the *Atlantic Monthly* to send them whatever literature was available. This eventually led to their book *Mutiny on the Bounty* and to the movie that brought Marlon Brando to Tahiti, where he and his family now live.

I was struck, during my earlier visits, by how many of the cultural and social traditions survived, even though the Western world had clearly made a considerable impact on many aspects of Polynesian life.

Polynesia was one of the last areas of our world to be "discovered" by Europeans. It was only at the beginning of the 17th century that Magellan sailed around the southern tip of South America and entered this region, but it was not until about 150 years prior to my first visit that Bougainville, Cook, and other explorers discovered the major archipelagos of Polynesia. Soon afterwards, missionaries began to convert the natives and, by the early 19th century, whalers and early traders were introducing western technology and cultural ideas to the islands.

Despite these inevitable changes, enough of the ancient culture survived into the 1880's and 90's to impress Henry Adams when he visited the islands. The political structure with its royal families of chieftancy, popular native dances, songs, and costumes, and traditional fishing and agricultural techniques, still flourished and are recorded among Adams' observations. Even the behavior and everyday manners of the natives retained many of the characteristics of the pre-European culture. I remember how my old native friends would greet me after a long absence by touching their nose to my nose, their version of a kiss.

And in French-controlled Tahiti, as late as 1929, the traditional royal family of the Pomare dynasty (supported by a grant from the French government) still held court as a symbol of the past. I have vivid memories of the reception the Queen graciously gave me at her spacious home, and her interest in my study of the physical and racial characteristics of the Polynesian population. This was one of the first studies aimed at determining — by anatomical and racial traits — the origins of the Polynesian people. It is a question that still remains somewhat controversial.

Also in Tahiti, I encountered an important surviving part of an ancient culture — the last living archives of Polynesian tradition. Not having a written language, the Polynesians relied on oral records. Experts with extraordinary memories were trained to preserve by memory the ancient rituals, royal genealogies, and epics of their origins and their gods. During my first visit, I listened with astonishment to the elderly men I met who could recite for hours at a time sacred traditions and historical records of their past. Fortunately, much

of the oral record was recorded by Stimson. He became one of the outstanding students of Polynesian linguistics.

Although memories of my encounters with the vanishing culture of Polynesia are all very vivid, one stands out among all the others.

This episode occurred on one of the atolls of the Tuamotuan archipelago. These islands stretch for hundreds of miles in a northwest to southeast direction between the Society Islands and the Marquesas. They have been, and still are, relatively isolated from European and American ships and visitors.

My first encounter with one of these atolls was on a trip I was making from Tahiti to the Marquesas aboard a trading schooner. En route, we sighted one of these atolls, and the captain informed me that we would not stop there because the coral island was elevated and there were no entrances into the lagoon where he might anchor safely and trade with the islanders. For this reason very few ships ever stopped there.



Harry Shapiro visits old friends during the most recent Discovery Tour to Polynesia.

My interest was aroused. This area presented the possibility of examining a population that had had little or no contact with the non-Polynesian world, and would therefore represent the pristine character of the natives before the assimilation and intermixture that had already affected other groups in the area. I therefore urged the captain to let me go ashore for a day. This was at his great inconvenience. It meant that he would have to sail around and around the island, since there was no safe anchorage along the island's circumference. I would have to be transported in one of the smaller, native craft that were so adept at navigating the reef. To my surprise and delight, the captain agreed, and I made a somewhat hazardous landing in one of the native boats that had come out to greet us.

I spent a busy day on shore, meeting and examining the inhabitants, and was constantly aware of their traditional way of life, their old-style houses, and even some of their artifacts.

As the day ended, and the dusk of early evening enveloped the village, I noticed the young men and women retiring to its outskirts. On my inquiry, I was informed that these were unmarried youngsters who, fol-

lowing the ancient Polynesian practice, were spending their evening dancing. I followed them, and witnessed the typical dances to ancient music played on old Polynesian instruments. After the dances the youngsters paired off and retired to the surrounding woods, following another ancient Polynesian tradition, accepted by the community, which permitted a free sexual life for the unmarried youth.

That night I retired to one of the village houses that had been emptied of its inhabitants to provide lodging for me. The natives had tidied it up and spread a sleeping mat for me on the floor of the main room. After a long and busy day, I took to my bed and quickly fell asleep.

Then, at about midnight, I awoke with a start to find a bright light held over my face. A group of men and women were peering down at me with considerable intensity. I was, of course, somewhat startled, and the islanders were clearly embarrassed. They then explained to me that I was the first white man to spend a night on the island — and since they were too polite to satisfy their curiosity about the strange appearance of such an exotic type by examining me during the daytime, they thought they would do so while I slept.

It was, therefore, not surprising that when I was invited to join the Museum's recent Discovery Tour to the South Pacific, and to deliver a couple of lectures on my scientific studies of the Polynesians, I immediately accepted. During the fifteen years since my last trip to Polynesia, I had frequently longed to visit those fabulous islands. My nostalgia for this part of the world overwhelmed me.

My fellow passengers and I boarded the World Discoverer, a charming ship with an excellent staff of cooks, on March 8, 1985 at Tahiti. We embarked on a two-week tour that included Moorea and Borabora in the Society Islands, then a stop at Palmerston on the way to Samoa and Tonga with a final stop at Fiji.

For me, the beauty of these islands, both the volcanic, mountainous areas like Tahiti, Borabora and Moorea, and the low atolls, had remained pristine and undiminished from my memories of them.

At each stop we took trips around the island, admiring their unspoiled beauty, their lofty peaks and lush valleys, and catching glimpses of the world of the natives much as it has been for generations. Occasional stops under the guidance of anthropologist Richard Gould, to explore the archaeological traces of the past, added to our sense of the history of these islands.

In addition, Dr. Richard Reese opened up a spectacular world of aquatic life to many of us, by introducing us to snorkeling on the reefs. And swimming on the lovely beaches provided a constant pleasure.

For me, with my memories of living with the natives on remote islands where I was often the only foreigner, there had been a constant and often unhappy anticipation that the world I remembered and loved would have disappeared, overwhelmed by tourism. To my delight, however, I found that the new hotels and touristic shops that had sprung up in the harbor towns were quickly left behind on our explorations of the islands. A few miles out of the port town, and we were back to the Polynesia I had known.

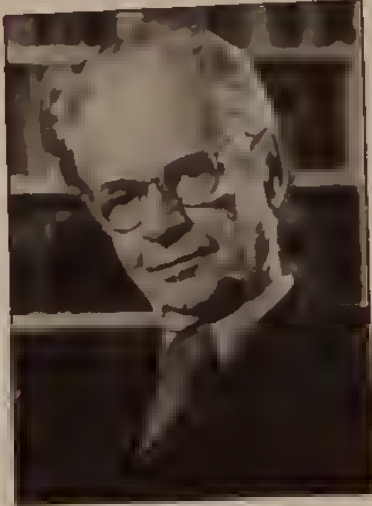
Harry L. Shapiro

Discovery Tours offers exciting opportunities for the public to join distinguished Museum lecturers in fascinating and remote parts of the world. Discovery Tours offers "Voyage through Melanesia: New Guinea to Fiji." February 16-March 6, 1986. Five Museum lecturers will take approximately 100 passengers on a luxury yacht through these intriguing islands. For further information, write: Discovery Tours, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1440 or (212) 799-7157.

Evolution of Social Behavior: Integrative Levels

The Third Annual T.C. Schneirla Conference

Public Lecture: Friday, November 8,
8:00 p.m., Main Auditorium
\$4 for Members, \$6 for non-members
Special Sessions listed below



Christopher S. Johnson

B.F. Skinner

Social ants, baboons and humans all live in "societies." As social animals, their lives require a certain amount of communication and division of labor. All cooperate, all fight, all mate. Yet obviously, their anatomy, their environments, their physiology, and their levels of organization vary. When does one say of a particular behavior characteristic "In this way, an ant is like a human and a human is like an ant"? And when does one say instead, "On the surface we have similarities, but our levels of organization are so different, our places in evolution so distant, that what we can learn in this sphere from an ant may help us little, if at all, to understand human behavior"?

Throughout his career as Curator in the Museum's Department of Animal Behavior, Dr. T.C. Schneirla combined field and laboratory work to address issues such as these. Through the concept of integrative levels of organization, Schneirla based his research on a comparative approach to behavior which stressed differences as well as similarities among animals. His studies of ants, mice, human babies, and many other creatures, shed much light on the developmental and evolutionary aspects of animal behavior.

Animal behavior and its relevance to human societal problems are the themes of the third conference dedicated to Schneirla, who died in 1968. The conference will include sessions for laypersons and scientists alike.

For the Public

In a session geared towards the public, three noted scientists will discuss their work from scientific, social, and philosophical viewpoints. The speakers are:

Stephen J. Gould: Non-adaptation in *Human Behavior*.
Sarah Hrdy: *Infanticide Among Primates*.
B.F. Skinner: *Genes and Behavior*.

Since the public lecture

promises to be very popular, Rotunda readers are advised to register in advance.

Specialized Sessions

The specialized sessions listed below will provide an opportunity for scholars from such diverse fields as comparative psychology, animal behavior, population genetics, and anthropology to discuss the relevance of the levels concept to studies of the evolution and development of social behavior.

All specialized sessions will take place in the Hayden Planetarium's classrooms (basement level). Morning sessions are from 9:00 a.m. to noon, and afternoon sessions are from 1:00 to 5:00 p.m. Due to limited space, preregistration is strongly advised.

Thursday morning, November 7. *An Introduction to the Concepts of Integrative Levels and Social Behavior*. Speakers: Lester Aronson, Gary Greenberg, and Ethel Tobach.

Friday morning, November 8. *Philosophical Issues in Hierarchies and Levels: Evolution of Social Behavior*. Speakers: Niles Eldredge, Marjorie Grene, Ernest Nagel and Marx Wartofsky.

Friday afternoon, November 8. *The Concept of Genetic Fitness and the Evolution of Social Behavior*. Speakers: Peter Klopfer, Richard Levins, Richard Lewontin, and Mae Wan Ho.

Saturday morning, November 9. *The Role of Development in the Evolution of Social Behavior in Invertebrates*. Speakers: Thomas Alloway, Mary Jane West Eberhard, Deborah Gordon, Francesco Le Moli, and A. Mori.

Saturday afternoon, November 9. *The Role of Non-reproductive Behavior Patterns in the Evolution of Social Behavior*. Speakers: Alison Jolly, Carolyn Ristau, William Livant, Thelma Rowell, A.F. Semikhina.

The Third Annual T.C. Schneirla Conference is co-sponsored by the American Museum of Natural History, the City University of New York, and Wichita State University.

Evolution of Social Behavior

For the public session only, tickets are \$4.00 for Members, \$6.00 for non-members. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to one. To attend the public lecture and the specialized sessions, the preregistration price for tickets is \$25 (\$10 for Members, students, retired, and unemployed). This ticket price goes up to \$35 at the door.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Telephone: _____

Membership Category: _____

Number of public session tickets at Members' price of \$4.00/each: _____

Number of public session tickets at non-members' price of \$6.00/each: _____

Specialized Sessions (includes admission to public session)

Number of Members' tickets at \$10.00 each: _____

Number of non-members' tickets at \$25.00 each: _____

Total amount enclosed: _____

Please mail your check payable to the T.C. Schneirla Research Fund to Social Behavior, Membership Office, American Museum of Natural History, 79th Street at Central Park West, New York, NY 10024.

Looking Ahead

India Month will continue through November at the Leonhardt People Center.

Masterpieces of the American West. From early scenes of Native American life, landscape, and the visions of Romantic painters, to the work of modernists such as Georgia O'Keefe, the paintings in the unique Anschutz Collection present powerful visual images of the American West. Native American and historical objects will accompany the paintings in this exhibition, scheduled to open November 27. Look for information about a special Members' viewing in the November issue of Rotunda.

Holiday Gifts. The Museum

Shop will soon be offering exciting gift items with the history and lore of the American West as their theme. A handsome catalogue from the exhibit *Masterpieces of the American West*, posters depicting Western scenes, and Native American pottery and jewelry will be some of the featured items.

Native American Film Festival. In December, a weekend of recent documentary films on American Indian and Inuit peoples will be presented as part of the Museum of the American Indian's Native American Film and Video Festival. Details will be provided in the December issue of Rotunda.

A Weekend of Gem Appeal

November 16 and 17
\$190 for Participating, Donor and Contributing Members*
\$215 for non-members



In cooperation with the Gemological Institute of America, the Museum has designed a comprehensive course in gemology. Created for the gem enthusiast, this course will be of equal interest to professional jewelers, amateur mineralogists, and gem collectors.

Two days of lectures, films, and slide presentations will cover topics such as the origins, sources and mining of gemstones, how to grade a diamond, gem identification and gems in jewelry, fashion, and lore.

Participants will meet on Friday, November 15, at 7:00 p.m. in the Hall of Minerals and Gems, for a "get acquainted"

social hour. Scientists from the Museum's Department of Mineral Sciences will host the reception, and program participants will enjoy a special viewing of the hall.

All-day sessions on Saturday and Sunday begin at 10:00 a.m. and end at approximately 5:30 p.m. Continental breakfast and lunch each day are included in the fee.

Advance registration is required to participate in the seminar. To register, please complete the coupon below. For additional information, please call (212) 873-7507.

* Please note that Associate Members are not eligible for the discount.

Weekend Gem Seminar

I have enclosed a check in the amount of \$_____ payable to the American Museum of Natural History, along with a self-addressed, stamped envelope to reserve _____ spaces for the Weekend Gem Seminar.

Name: _____

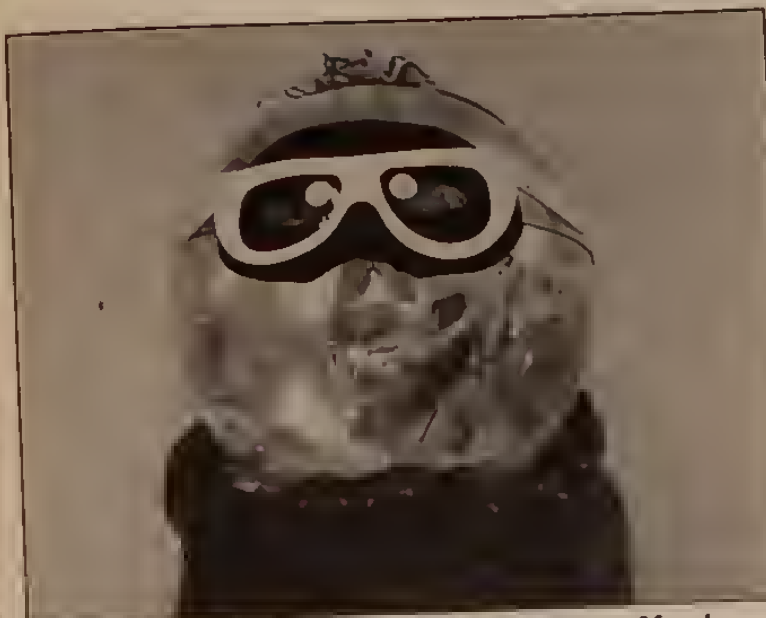
Address: _____

City: _____ State: _____ Zip: _____

Daytime telephone number: _____

Please mail your check, self-addressed stamped envelope, and coupon to Weekend Gem Seminar, Education Department, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.

Museum Notes



The Museum's resident rock crystal wishes Members a hoppy Halloween.

Special Exhibitions

The Art of Cameroon.

Through October 15. This temporary exhibition includes ceremonial masks, pieces of jewelry and terra cotta, wood carvings and animal icons, most of which are from the Grassfields, a region of complex cultures and hierarchical institutions. Gallery 1.

Celebrate India. The following exhibitions opening this month celebrate the cultural diversity, wildlife, and natural beauty of India:

Tiger Tiger Burning

Bright opens October 1 in the Naturemax Gallery. It includes 64 exquisite color photographs of Indian wildlife.

Vijayanagara: Where

Kings and Gods Meet opens October 23 in the Akeley Gallery. This photographic exhibition features the temples, palaces, sumptuous pavilions, and

other aspects of Vijayanagara, the greatest of all ruined cities in southern India.

For additional information concerning these two new temporary exhibitions, please turn to page 4.

Jewels of India. A succinct view of the rich natural history and cultural heritage of India, as reflected in the Library's rare book, photographic and general collections. The images and illustrations include insects with a vibrant, gem-like quality, a delicate Asian elephant by Curvier, original botanical drawings and vintage photographs of India. Library Entrance (closed weekends).

From the Museum's Attic. Through January 20. The Museum Library's memorabilia collection is like grandmother's attic — full of Museum mementos such as utensils and keepsakes from expeditions, family portraits and snapshots, diaries, invitations, letters, paintings

and furniture. This exhibit displays memorabilia of Teddy Roosevelt, Roy Chapman Andrews, Lincoln Ellsworth, and American Museum founder Albert S. Bickmore. In the Library Gallery on the fourth floor.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the first-floor information desk. If you wish to join a free tour, please ask at an information desk for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For additional information, write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, 2:00 to 4:30 p.m., Saturday and Sunday, 1:00 to 4:30 p.m. It is closed on Mondays and holidays.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor information desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

The Leonhardt People Center features ethnic programs of dance, music, films.

lectures and workshops. Weekends from 1:00 to 4:30 p.m. In October and November, India is the featured country. Turn to the calendar for further details.

Naturemax Information

On New York's largest movie screen — four stories tall and sixty feet wide — the drama of space unfolds, as Museum visitors join astronauts aboard the space shuttle in Naturemax's newest film *The Dream is Alive*. In addition, Friday and Saturday double features include all-time Naturemax favorites *To Fly!* and *Living Planet*.

The box office is located in the 77th Street lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$7.00 for cars and \$8.00 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings. For a list of other garages in the area, please call the Membership Office at (212) 873-1327.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Mon.-Fri., 11:00 a.m. to 4:00 p.m. Tea: daily, 4:00 to 5:00 p.m. Dinner: Wed., Fri. and Sat., 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:00 p.m.

Coat Checking. Daily from 10:00 a.m. to 5:30 p.m. in the basement. Rate is \$.50 per item.

Southwestern Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Black Musical Tradition on Film

Saturday, October 19
and Saturday, October 26
1:00 p.m. and 3:30 p.m.
Kaufmann Theater
Free

Saturday, October 19. **Soy Amen, Somebody.** Gospel, a musical form over 60 years old, is sometimes called "God's good news." The spirituality and faith embodied by this music are exuberantly portrayed by director George Nierenberg in this 25-song soundtrack musical documentary, which explores the careers of such gospel greats as Professor Thomas A. Dorsey, the "father of gospel music," and Mother Willa Mae Ford Smith.

Soy Amen, Somebody will be introduced by gospel authority L.D. Frazier. Frazier is a gospel music singer and lecturer. He leads several choirs in the New York City area.

Saturday, October 26. **Jazz**

on a Summer's Day. This major film statement on jazz covers the 1958 Newport Jazz Festival. Director and photographer Bert Stern brings together performers, audience, and music into a joyous celebration of jazz and blues.

Performers in the film include Thelonius Monk, Chuck Berry, Anita O'Day, Sonny Stitt, Louis Armstrong, Jack Teagarden, Gerry Mulligan, Eric Dolphy, and Mahalia Jackson.

Ernest Smith, archival jazz film collector and film consultant, will introduce the film.

Seating for both programs, sponsored by the Museum's Education Department, is on a first-come, first-served basis.



Chico Hamilton, in *Jazz on a Summer's Day*.

Sat

5 11:00 a.m. New York Map Society. Room 129
1:00 to 4:30 p.m. Celebrating India. Kathak dances with Najma Ayashah; Kathak music (sitar and tabla) with Suhas Chakraborty and Badal Roy; storytelling in song with Shyan Bhatnagar and Kundan Lalsharma. People Center. Free
2:00 and 4:00 p.m. Bharata Natyam. Dance Drama of South India. Kaufmann Theater. Free. Page 5

Fri

4 9:00-11:00 a.m. Bird-walk with Steve Quinn. Meets corner of 77th Street and Central Park West. \$4.00. For additional information call (212) 873-7507
7:00 p.m. Systematics Discussion Group. Room 419
HAPPY 50TH BIRTHDAY HAYDEN PLANETARIUM

Thu

3 9:00-11:00 a.m. Bird-walk with Steve Quinn. Meets corner of 77th Street and Central Park West. \$4.00. For additional information call (212) 873-7507
7:45 p.m. Amateur Astronomers Society. Kaufmann Theater.
 Moon at Apogee

Wed

2 7:00-9:00 a.m. Bird-walk with Steve Quinn. Meets corner of 77th Street and Central Park West. \$4.00. For additional information call (212) 873-7507.
7:00 p.m. Linnaean Society. Kaufmann Theater

Tue

1 7:00-9:00 a.m. Bird-walk with Steve Quinn. Meets corner of 77th Street and Central Park West. \$4.00. For additional information call (212) 873-7507.
7:00 p.m. Linnaean Society. Kaufmann Theater

Mon

6 10:00 a.m., 12:30 and 2:30 p.m. Members' Tour of Brooklyn Heights. Registration Required. See the September Rotunda or call (212) 873-1327
1:00 to 4:30 p.m. Celebrating India. Same as October 5. People Center. Free.
2:00 p.m. Masterpieces of Cameroon Art. Beauty in the Court and the Compound, with Dr. Sylvia Boone. Kaufmann Theater. Free.

Sun

13 1:00 to 4:30 p.m. Celebrating India. Same as October 12. People Center. Free.
1:30 p.m. New York Shell Club. Room 419
 New Moon

12

1:00 to 4:30 p.m. Celebrating India. Explaining a Festival of Lights Ritual, and "The Lion and the Brahmin — an Animal Tale" with the East-West Fusion Theater; performing arts (masks, puppets, and gestures) with Taviot Fairservic Purohot; "The Indian Family" (a slide talk) with Anne James. People Center. Free.

11

10 9:00-11:00 a.m. Bird-walk with Steve Quinn. See October 3.

9 6:00 p.m. New York Conservation Association. Linder Theater.

8 7:00-9:00 a.m. Bird-walk with Steve Quinn. See October 1.

8:00 p.m. Linnaean Society. Kaufmann Theater

16

15 7:00-9:00 a.m. Bird-walk with Steve Quinn. See October 1.

14 Moon at Pengee Columbus Day (Museum open)

13 1:00 to 4:30 p.m. Celebrating India. Same as October 12. People Center. Free.
1:30 p.m. New York Shell Club. Room 419
 New Moon

18 7:00 p.m. Latin and Black Perspectives on Contemporary Living. Kaufmann Theater. Free. Page 5.

7:00 p.m. New York Microscopical Society. Room 419

19 1:00 to 4:30 p.m. Celebrating India. Explaining a Festival of Lights Ritual. Manipuri Onshi, and Tagore Dances with Ameena Tara Mohammed; Gods who Dance, with Nandini Anand; The Mughals, with Paul Santagon. People Center. Free.
1:00 p.m. and 3:30 p.m. Black Musical Tradition on Film. Kaufmann Theater. Free. Page 11.

25

24 9:00-11:00 a.m. Bird-walk with Steve Quinn. See October 3

23 8:00 p.m. Met Grotto; National Speleological Society. Room 129.

22 7:00-9:00 a.m. Bird-walk with Steve Quinn. See October 1.

8:00 p.m. Linnaean Society. People Center.

Vijayanagara: Where Kings and Gods Meet exhibition opens in the Akeley Gallery. Page 4.

26 1:00 to 4:30 p.m. Celebrating India. Explaining a Festival of Lights Ritual. Dances of the Festival of Lights with Najma Ayashah; Music of the Festival of Lights, with Badal Roy. Bridal dresses and customs, with Balambal Natarajan. People Center. Free
1:00 and 3:30 p.m. Black Musical Tradition. Kaufmann Theater. Free. Page 11.

21

20 1:00 to 4:30 p.m. Celebrating India. Same as October 19. People Center. Free.
1:00 p.m. American Cetacean Society. Room 319.
2:00 p.m. Latin and Black Perspectives on Contemporary Living. Linder Theater. Free. Page 5.
2:00 p.m. New York Paleontological Society. Room 426.
2:00 p.m. New York Turtle and Tortoise Society. Room 129.

Full Moon

29

Moon at Apogee

30

31 HAPPY HALLOWEEN
 Museum open to people, ghosts, and ghouls.

27 1:00 to 4:30 p.m. Celebrating India. Same as October 26. People Center. Free.
2:00 p.m. Latin and Black Perspectives on Contemporary Living. Kaufmann Theater. Free. Page 5

October 1985 American Museum of Natural History

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History Vol. 10, No. 10 November 1985



Celebrating India

In June of this year, Ravi Shankar, Ali Akbar Khan, Zakir Hussain, and Birju Maharaj opened up the Festival of India celebrations by performing in Washington's Kennedy Center. Continuing into next year, the Festival of India may well be the largest cultural program of its kind ever undertaken. More than 300 institutions in the United States and India have cooperated to pay homage to Indian history, film, visual and performing arts, religions, and wildlife.

In conjunction with the Festival, two exhibitions celebrating India opened at the Museum in October. *Tiger Tiger Burning Bright: An Indian Wildlife Portfolio*, in the Naturemax Gallery until January 12, features more than 50 beautiful color photographs of Indian species such as the water buffalo, Indian rhinoceros, rock python, Siberian crane, and slender lorises.

Also at the Museum is *Vijayanagara:*

Where Kings and Gods Meet, featuring forty photographs and architectural drawings of the best-preserved of India's Hindu capitals. Vijayanagara was conceived as a cosmic city six centuries ago, and was modeled on the mythical city of Ayodha, the home of the god Rama. Vijayanagara can be seen through Sunday, January 26 in the Akeley Gallery. November ushers in a second month of outstanding weekend performances and demonstrations in the Leonhardt People Center.

Padma Chittampalli, shown in the photograph above, hails from a family of musicians and artists from Mysore, South India. She began dancing and reciting Sanskrit verses as early as age three. Through long years of intensive training under eminent gurus, Padma has acquired a vast repertoire of different Indian dances and dance styles. She will be dancing the *Mohini Attam* and the *Bharata Natyam* styles on November 23

and November 24.

Also at the People Center this month is the East-West Fusion Theatre. This group will perform lively folktales from India by one of India's leading playwrights, Balwant Gargi, and folklorist Subi Mann. The stories are performed with authentic costumes, masks and jewelry. The East-West Fusion Theatre can be seen during the weekends of November 2 and 3, and November 30/December 1.

Located on the second floor of the Dana Education Wing, the People Center is a multi-use space consisting of two learning terraces and a small auditorium. All activities presented there are repeated throughout the afternoon.

Other demonstrations and performances include a slide show about the Indian family, Kamatak vocal music, northern Indian music, and more. A full schedule of People Center activities is listed in this month's calendar on page 8.

An Origami Winter

Members are invited to a special workshop to learn the ancient art of Origami, and the Museum's beautiful Origami Holiday tree can be seen in the second floor Rotunda from November 26 through January 5.

Page 7

Fish Behind Closed Doors

Wet and dry fish skeletons, desert fishes, guppies, and Mexican suckers are some of the subjects of this month's Behind-the-Scenes Tour of the Department of Ichthyology.

Page 2

Seasons in the Sky

Vivaldi's "Four Seasons" and other Baroque favorites will be performed beneath the stars of the Hayden Planetarium.

Page 6

Go West

Masterpieces of the American West, an exhibition featuring the paintings of Russell, Remington, Pollock, O'Keeffe, and others, opens on November 29. See page 3 for information on the exhibition and a Members' Reception featuring Native American music.

Tales and Tricksters

Folk tales of Anansi, Br'er Rabbit, and other favorite characters will be told this month in the Kaufmann Theater. The stories hail from the Caribbean, Africa, and the U.S.

Page 7



John Cooke

Noted nature photographer and filmmaker John Cooke shows his film *Come Into My Parlour* on Wednesday, November 6, at 7:30 p.m. in the Main Auditorium. Spider hunting, mating, web-spinning and moulting are some of the topics covered by this beautiful film. Use the Members' Program Coupon on page 3 to order tickets.

Participating, Donor and Contributing Members are invited to a special **Behind-the-Scenes Tour of the Department of Ichthyology**

**Sunday, November 17
and
Thursday, November 21
\$7.00.**

This season's behind-the-scenes tour opens as Members view some of the Ichthyology Department's more than two million specimens, including wet and dry skeletons. Norma Feinberg, Collections Manager, will speak about the management, maintenance, and raison d'être of this outstanding collection.

Other speakers and topics include the following:

South American catfishes. Graduate student Carl Ferraris participated in last year's expedition to Venezuela's Mountain of the Mist. He returned with many exciting new specimens and is currently comparing them to those from other areas of the continent. Members will view several of these specimens, and hear about some of the important clues they provide.

Desert fishes and scientific puzzles. Unraveling the puzzle of relationships among fish can also lead to important information about climates and geologic features of long ago. Curator Mike Smith will discuss his work with desert fishes, and share with Members his ongoing idealism about scientific inquiry.

Gambusia and Poecilia. Graduate student Mary Rauchenberger studies the systematics of two different groups of fish. One of them, the poeciliids, includes guppies and mollies. Members can view

cleared and stained specimens of these fish. With certain preparations, the skeleton can be seen through the fish's skin. Rauchenberger will also discuss the department's computer cataloguing system.

Suckers from Mexico. Darrell Siebert, graduate student,

spends a large amount of time classifying undescribed suckers. He will show Members several specimens of these fish, and explain what a scientist examines and measures in the process of describing a species.

To register for the tour, please use the coupon below.

Behind-the-Scenes Tour of the Department of Ichthyology. \$7.00 and open only to Participating, Donor, and Contributing Members.

Tours will leave at fifteen-minute intervals. We will send you a confirmation card by mail indicating the exact time your tour will start. Please indicate a first, second, and third choice.

_____ Sunday, November 17 between 10:30 a.m. and noon
_____ Sunday, November 17 between 1:00 and 2:30 p.m.
_____ Thursday, November 21 between 5:15 and 6:00 p.m.
_____ Thursday, November 21 between 6:00 and 7:30 p.m.

Number of tickets at \$7.00 each: _____

Amount enclosed for program: _____

\$ _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Telephone: _____

Membership category: _____

Please make check payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to FISH, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.

ROTUNDA

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Angela Soccadato — Designer
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Another Side of the Rainbow

**Sunday, November 24
11:00 a.m., 1:00 and 3:30 p.m.
Kaufmann Theater
Free for Members, \$2.50 for non-members**



An amoeba-like creature is portrayed by a human dancer.

Coyote wanted to dance. He danced with trees, animals, and streams. But most of all, he longed to dance with a star. He found a star that would dance with him. As they danced, coyote grew very, very tired, until he slipped and fell down to earth. This is how falling stars came to be.

This Zuni legend inspired the choreography for one of several dances to be performed this month by the Rainbow Road Dancers. Other dances in the program include *Aio the Rainmaker*, from a legend about an African rainmaker, *Alpha Boggie*, a new way to enjoy the alphabet, and *Hoe Down*, a country western dance about life on a farm.

Even evolution can be expressed in dance. In *Origins*, a piece inspired by several Museum exhibitions, the dancers trace the development of life from one-celled creatures to human beings.

The Rainbow Road Dancers perform modern dance for children and the young at heart. They have performed at numerous schools and community centers throughout the greater New York area, including Belvedere Castle in Central Park, and the Vital Arts Center in Manhattan.

To register for *Another Side of the Rainbow*, please use the November Members' Programs Coupon on the opposite page.

Season

Favorite Museum Views

What do Theodore Roosevelt, a Haida canoe, Akeley's African elephants, a blue whale, a gorilla, and a giant sequoia have in common? They are all represented in a slide set of 20 favorite Museum views, now available at the first floor Information Desk. The price is \$9.50 per set, with a 10% discount for Members.

Sets are also available in the Photographic Collection near

the Library on the fourth floor, open weekdays from 11 a.m. to 4 p.m.

To order sets by mail, please add 50 cents for postage. Checks can be made payable to the American Museum of Natural History, and mailed to: Photographic Collection, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.



Newell Convers Wyeth's "Blue Lock, The Queen."

Participating, Donor and Contributing Members are invited to a Special Members' Viewing and Reception for

Masterpieces of the American West

Monday, December 2 between 6:30 and 10:00 p.m.

The Exhibition

Masterpieces of the American West chronicles the exploration, growth, and development of the American West during the past 150 years. The exhibition, comprised of paintings from the Anschutz Collection, features over 90 artists and includes works by Georgia O'Keeffe, Jackson Pollock, Frederick Remington, George Catlin, Helen Frankenthaler, and Charles Russell.

The West attracted generations of artists who came to depict its flora, fauna, and regional cultures. Gold miners and cowboys, Indian chiefs and Pueblo villages, majestic peaks and magnificent canyons, have all provided sources of endless inspiration to western artists. The

works in the exhibition range from Alfred Jacob Miller's portrayal of the annual trappers' rendezvous in the 1830s to Chuck Forsman's 1980 painting "Dirt Rider," which illustrates the damage that dirt bikes can inflict on the western landscape.

Masterpieces of the American West is supported by a grant from Mobil. The exhibition will be on view in Gallery 3 from Friday, November 29 to Sunday, February 16.

Entertainment

The Thunderbird American Indian Dancers will perform songs and dances of Native American peoples of the Northwest coast, the Plains (including

The Sioux and Winnebago) and the Southwest (Hopi, Santo Domingo, and other Pueblos).

The Thunderbirds are all Native Americans who, in addition to their performances, also offer workshops throughout the year and help support higher education for American Indian peoples.

Refreshments

A cash bar serving soda, wine, and beer will be open throughout the evening. The American Museum Restaurant will be open until 7:30 p.m. The menu will feature a special selection of Western foods. Dinner reservations are advisable; to make them, please call (212) 874-3436.



Halley's comet is coming, and the Planetarium has plenty of gifts relating to the famous comet for both children and adults. Coloring books, T-shirts, and books are just a few. The Planetarium Gift Shop is open seven days a week from 1:00 to 4:40 p.m. Members receive a 10% discount.

Gift Memberships

As a special holiday benefit, Members may give gift Memberships at 30% off our regular Membership rates. Only \$28 for a Participating Membership and just \$14 for an Associate one.

☐ YES! A gift of Membership is a wonderful idea. Please enroll the following as:

_____ a \$14 Associate Member _____ a \$28 Participating Member

The recipient of this gift will receive notice of his or her new Membership in a beautiful holiday card.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

This Membership is a gift from:

Name: _____

Address: _____

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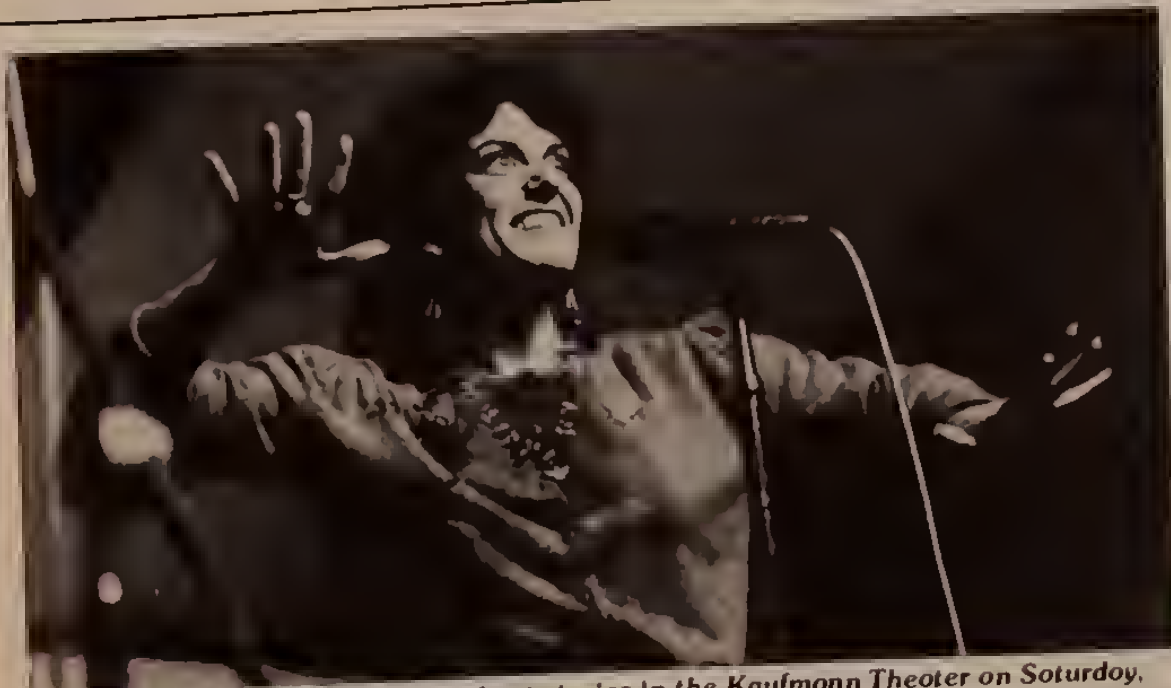
Membership category: _____

_____ Enclosed is my check payable to the American Museum of Natural History.

_____ Please bill me after the holidays.

Save time — order by calling our toll free number, (800) 247-5470

When using this coupon, please mail it to: Membership Secretary, American Museum of Natural History, 79th Street at Central Park West, New York, NY 10024.



Storyteller Laura Simms tells ghost stories in the Kaufmann Theater on Saturday, November 2. Stories for adults will be told at 7:30 p.m., while stories geared for the family (recommended for children 8 years and older) will be told at 1:30 and 3:30 p.m. Members' tickets are \$3.00 for adults and \$2.00 for children. Non-members' tickets are \$4.00 each. For ticket availability, please call (212) 873-1327.



Noted nature photographer and filmmaker John Cooke shot *Parlour* on Wednesday, November 6, at 7:30 p.m. In the *Molting*, *molting*, *web-spinning* and *moulting* are some of the top film. Use the Members' Program Coupon on page 3 to c

A Weekend of Gems

November 16 and 17

\$190 for Participating, Donor, and Contributing Members

\$215 for non-members

This comprehensive course in gemology is the perfect opportunity to learn everything you've ever wondered about gems, including how to appraise the value of a gem, and current trends in gemology.

The course includes a "get acquainted" social hour on the evening of Friday, November 15, followed by two days of films, lectures, and slide presentations.

Continental breakfast and

lunch each day are included in the fee.

For further details about the weekend, and registration information, please call The Education Department at (212) 873-7507.

Social Behavior: Integrative Levels Third Annual T.C. Schneirla Conference

Friday, November 8

8:00 p.m.

Main Auditorium

\$4 for Members, \$6 for non-members



Rhesus macaques outside a temple in Nepal.

Participating, Donor and Contributing Members at Behind-the-Scenes Tour of the Department of Ichthyology

Sunday, November 17

and

Thursday, November 21

\$7.00.

This season's behind-the-scenes tour opens as Members view some of the Ichthyology Department's more than two million specimens, including wet and dry skeletons. Norma Feinberg, Collections Manager, will speak about the management, maintenance, and raison d'être of this outstanding collection.

Other speakers and topics include the following:

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Suckers from Mexico. Darrell Siebert, graduate student,

Behind-the-Scenes Tour of the Ichthyology. \$7.00 and open only to Contributing Members.

Tours will leave at fifteen-minute confirmation card by mail indicating start. Please indicate a first, second

____ Sunday, November 17
____ Sunday, November 17
____ Thursday, November 21
____ Thursday, November 21

Number of tickets at \$7.00 each
Amount enclosed for program:

Name: _____

Address: _____

City: _____ State: _____

Daytime Telephone: _____

Membership category: _____

Please make check payable to the History and mail with a self-addressed Membership Office, American Museum of Natural History, 1215 York Avenue, New York, NY 10021.

In the great biological web that reaches from the bottom of the sea to the heights of great mountains, social behavior is not unique to human beings. Animals as different from us and from one another as ants and dolphins share with us the daily needs for communication, aggression management, and division of labor that a social lifestyle entails.

How has social behavior evolved? How do social "arrangements" among animals contribute to the stability of their species? Why does social behavior so often appear to work against the social harmony of a group? What is the relevance of animal behavior to human biology and culture? These are some of the topics to be discussed by three outstanding behaviorists who will speak at the Museum this month.

Sarah Hrdy. Currently at the University of California at Davis, Hrdy is a primatologist whose research focuses on the male/female sex ratios and the distribution of resources among male and female offspring of rhesus macaques.

Questions she will explore

with the audience include: When do macaques and other primates produce more female than male offspring, and what are the possible evolutionary reasons and consequences? What are sex ratios at conception, birth, and at the end of primate investment? Do high-ranking females produce more daughters or more sons? Why or why not? What are the mechanisms? And, last but not least, what might the resulting information tell us about our own species?

Hrdy's studies concerning distribution of resources are currently being applied to human as well as non-human primates; she and her staff are comparing the resources that parents leave to male and female children in their wills.

B.F. Skinner. B.F. Skinner is a well-known teacher, researcher and writer who is currently at the Department of Psychology and Social Relations at Harvard University. He is perhaps best known to the public as the author of *Walden II*.

In a lecture entitled *Genes and Behavior*, Skinner will elucidate aspects of our behavior that are now known to have a great genetic component.

Skinner does not stand at either extreme of the nature-nurture controversy. He is primarily interested in how innate behavior, learned individual behavior, and cultural behavior interact to produce resultant patterns.

Stephen Jay Gould. Known for his many books including *The Mismeasure of Man*, *Ever Since Darwin*, and *The Flamingo's Smile*, Gould teaches biology, geology, and history of science at Harvard University. In his writings, courses, and frequent public lectures, Gould most often focuses on the mechanisms, consequences, and teachings of biological evolution.

In his lecture entitled *Nonadaptation in Human Behavior* Gould will discuss the evolution of social behavior, and how it has led to behavioral mechanisms that are not always adaptive. Many scientists no longer adhere to the idea that all evolutionary changes are "selected" for, as classical Darwinists once thought; there may be a high degree of randomness involved.

As this issue was about to go to press, the program sold out. We regret that no more tickets are available.

Gifts for a New Season

Gift Choices for the Holiday Season

Gifts from around the world are the Museum Gift Shop's bounty. Friends and family members of all ages will appreciate gifts like the following:

Masterpieces of the American West. In conjunction with the new exhibition, the Gift Shop will be offering American Indian jewelry worked both in the traditional sterling silver and turquoise, and in more contemporary styles using sterling silver and black onyx. A beautiful catalog for the exhibition is available at \$15.00.

Beautiful hand-knit sweaters (from \$66). Sweaters from Ireland, England, South and Central America are available with both geometric and nature motifs.

Christmas ornaments from around the world (from \$2.50). Hand-painted chicken feather birds from China, and hand-painted ornaments from Thailand.

Globes (from \$5 to \$300). We have expanded our variety of globes this year. Of particular interest is the Bowl of Night, a fascinating desk-top planisphere that enables you to view the stars in the night sky at any hour (\$70).

Sounds (from \$4.98 to \$30.00). Our book balcony has records and cassettes of sounds from nature, and from various cultures around the world.

Prehistoric Animal Ties (\$14.50). For our many collectors, we have expanded our prehistoric animal tie collection.



Designs now include **Corythosaurus** (a duckbill dinosaur) and **Plesiosaurus** (an extinct marine reptile). Both are available in maroon or navy.

Minerals (from \$2.50 to \$500). Our collection of mineral specimens is almost as spectacular as the ones in our Hall of Minerals! We also have a large assortment of semi-precious necklaces and earrings, mineral pen sets, bookends, and clocks.

Junior Items The Junior Shops are filled with fun as well as educational gifts priced from under \$1 and up. Of particular interest to children are the dinosaur models (from \$2.77).

And much, much more! Books, cards, hand-made dresses, skirts and blouses, walking sticks, baskets, chalk

boards, hand-crafted jewelry, decorative items in all shapes and sizes, origami kits, posters, bags, T-shirts — and this is still just a partial list!

Our main shop on the first floor near the 77th Street entrance is open from 10:00 a.m. to 5:45 p.m. every day except Wednesday. On Wednesday, our hours are 10:00 a.m. to 7:45 p.m.

The Gallery 3 shop on the third floor is open daily from noon to 4:45 p.m., from November 29 through February 16.

Junior Shop hours are from 10:00 a.m. to 4:45 daily. Our two junior shops are located in the 77th Street lobby, and in the basement near the subway entrance.

Favorite Museum Views

What do Theodore Roosevelt, a Haida canoe, Akeley's African elephants, a blue whale, a gorilla, and a giant sequoia have in common? They are all represented in a slide set of 20 favorite Museum views, now available at the first floor Information Desk. The price is \$9.50 per set, with a 10% discount for Members.

Sets are also available in the Photographic Collection near

the Library on the fourth floor, open weekdays from 11 a.m. to 4 p.m.

To order sets by mail, please add 50 cents for postage. Checks can be made payable to the American Museum of Natural History, and mailed to: Photographic Collection, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.



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Members' Book Program

This year our Members' Book Program has created two outstanding wall calendars for 1986. *In Focus* features the

finest pictures from past Natural History photo contest winners, all reproduced in huge glossy color. It is an ideal gift for the na-

ture lover or photographer.

If you know a child who is in love with dinosaurs, then consider giving Dinosaurs, the Museum's official calendar. It contains incredible paintings of dinosaurs and other prehistoric creatures, all created by Charles R. Knight, acknowledged to be one of the greatest paleontological artists ever.

To order either of these calendars, please use the coupon below. You can also use the coupon to send away for the free Members' Book Program Catalog which will enable you to conveniently shop at home.

Highlights of this year's catalog include: Stephen Jay Gould's latest book *The Flamingo's Smile*; the recently published autobiography of Ansel Adams; and a limited signed edition of Richard A. Cook III's splendid pictorial work on Molokai, *An Island of Time*.

Most books listed in the catalog are offered at a special discount for Members. Since many are limited in supply, it is best to order early.

Members' Book Program

☐ YES, I would like to order _____ *In Focus* calendars, at \$12.95 each.

☐ YES, I would like to order _____ dinosaur calendars at \$6.50 each.

Total amount enclosed (Please add \$1.50 for shipping and handling): _____

☐ Please send me the free book catalog featuring over 50 books in all areas of natural history and anthropology, with discounts of up to 50% off the publishers' prices!

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Please enclose check payable to the American Museum of Natural History.

Mail to: Members' Book Program
American Museum of Natural History
Central Park West at 79th Street
New York, NY 10024

Gift Memberships

As a special holiday benefit, Members may give gift Memberships at 30% off our regular Membership rates. Only \$28 for a Participating Membership and just \$14 for an Associate one.

☐ YES! A gift of Membership is a wonderful idea. Please enroll the following as:

_____ a \$14 Associate Member _____ a \$28 Participating Member

The recipient of this gift will receive notice of his or her new Membership in a beautiful holiday card.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

This Membership is a gift from:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

_____ Enclosed is my check payable to the American Museum of Natural History.

_____ Please bill me after the holidays.

Save time — order by calling our toll free number. (800) 247-5470.

When using this coupon, please mail it to: Membership Secretary, American Museum of Natural History, 79th Street at Central Park West, New York, NY 10024.

Happenings at the Hayden

Please note: On November 26 the American Museum-Hayden Planetarium will be closed for show installation.

Sky Shows

Hayden: The Golden Years and *Halley's Comet: Once in a Lifetime*. Double Feature. Through November 25.

Fifty years ago, the Hayden Planetarium opened its doors. Since then, over 25 million people have marveled at the wonders of the night sky or taken trips into space in the Sky Theater. *Hayden: The Golden Years*, narrated by Charlton Heston, looks back at those five decades of history to examine how the Planetarium and its programs have changed, and to highlight important discoveries in astronomy. The show also takes viewers into the future to ponder how our universe might be transformed in the next fifty years.

Halley's Comet: Once in a Lifetime, narrated by William Shatner, demonstrates where and when to look for Halley's Comet. It also explores the nature of comets and discusses how scientists will soon be able to study a comet in more detail than ever before.

The Star of Christmas. November 27 through January 1. Travel back 2,000 years to explore the skies of the first Christmas, and the "star" that led the Wise Men to Bethlehem.

Sky Show admission for Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children, and includes two floors of exhibitions. For non-member prices and Sky Show times, please call (212) 873-8828.

Wonderful Sky

The Muppets are back to take preschoolers on a journey to explore rainbows, sunsets, and

distant stars. Big Bird, Cookie Monster, Grover, and other favorite Sesame Street Muppet characters encourage the children to participate in their songs. Reservations (212-873-5714) are strongly recommended. Please see the shaded box for a four-month schedule.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings. An old-time favorite, *Laser Zeppelin*, has returned to the Planetarium.

7:00 p.m.: *Heavy Laser*. Features a combination show of The Police, Van Halen, The Who, and Rush.

8:30 p.m. *Laser Floyd*. With the music of Pink Floyd.

10:30 p.m. *Laser Zeppelin*. With the music of Led Zeppelin.

Laser show admission for Participating, Donor and

Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

School Programs

The Planetarium offers many

programs for young children. For school information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.

Wonderful Sky

November, December, January and February Schedule

Saturday, November 2	10:00 a.m.
Thursday, November 7	10:15 a.m., 11:25 a.m.
Wednesday, November 13	11:25 a.m.
Friday, November 22	10:15 a.m., 11:25 a.m.
Saturday, December 7	10:00 a.m.
Saturday, January 4	10:00 a.m.
Tuesday, January 7	11:25 a.m.
Tuesday, January 21	10:15 a.m., 11:25 a.m.
Monday, January 27	11:25 a.m.
Thursday, January 30	10:15, 11:25 a.m.
Saturday, February 1	10:00 a.m.
Friday, February 7	11:25 a.m.
Tuesday, February 11	11:25 a.m.
Monday, February 24	11:25 a.m.
Thursday, February 27	10:15 a.m., 11:25 a.m.

African Influence in Uruguay

Slide Show Lecture in Spanish

Wednesday, November 6, 7:00 p.m.
Linder Theater, Free



Painting by Julio Olivera

At first glance, the country of Uruguay, like its neighbor Argentina, seems to be a Latin American country whose cultural and historical influences have been predominantly native and European. Descendants of the Africans who were brought to the new world as slaves have moved northward, leaving little that was obviously African behind.

Yet in Montevideo, Uruguay's capital city, the poems, dances, and music of the black minority persist. One of the most joyful and colorful manifestations of Uruguayan African culture is the *Candombe*, a dance which shares African and Latin American roots and includes characters such as the "lubolos" (whites painted as blacks), and caricatures of Eighteenth-Century doctors and ladies.

By the age of 17 Julio Olivera, a Uruguayan of African extraction, had begun to paint scenes from the folklore of his native country, which reveal the ancestral African influences that survive up to the present time in Montevideo, the city of his birth. African traditions in Uruguay have remained his strongest inspiration in painting, as well as in his work as historian, musician, and dance director.

This month, Olivera will present a slide show that features his own paintings along Afro-Uruguayan themes, as well as the characters, people, neighborhoods, musical instruments, and typical costumes of African-influenced Uruguayan culture.

Please note that this program is in Spanish only. It is presented by the Department of Education. Seating is on a first-come, first-served basis.

Vivaldi's Four Seasons

Wednesday, December 11

7:00 and 9:00 p.m.

American Museum-Hayden Planetarium

\$6.00 for Members, \$9.00 for non-members

Celebrate the changing seasons at our second annual holiday concert under the stars in the Planetarium's Sky Theater. This all-baroque program will feature the second movement of Johann Sebastian Bach's Concerto No. 5 in F Major (BMV 1056) and Antonio Vivaldi's popular *Le Quattro Stagioni* (*The Four Seasons*).

The four string concertos that form the latter piece were composed in 1725. They express the moods of spring, summer, autumn, and winter.

The concerts will be performed live by a seven-piece ensemble from Music for Occasions, Inc. (Paul Gary, Music Director). Crystal clear night skies, dazzling laser effects, and im-

ages of the seasons will grace the Planetarium dome as Members relax and enjoy the performance.

Last year's concerts were quickly sold out, so early registration is strongly advised. Please use the November Members' Programs Coupon on page 3 to order tickets for *The Four Seasons*.



Brain Sullivan

'Tis the Season for Origami

Pterodactyls, Diplodoces, pelicans, scottie dogs, pigs, turtles, rabbits, and complex shells are among the new extinct and extant animals that will decorate our 13th annual Origami Holiday Tree. And old favorites like peacocks, strawberries, jellyfish, dragons, horseshoe crabs, antelopes and elephants will not be forgotten. The Origami Tree can be seen by the public in all its glory in the Roosevelt Rotunda, from November 26 through January 5.

Representing more than

100,000 volunteer hours contributed by Museum Volunteers and members of The Friends of the Origami Center of America, our Origami Holiday Tree is a labor of love. And this year, the news is that our tree is now a grandmother! Many other origami trees will soon appear for the holiday season around the city, country, and world. Other such trees have already appeared in the White House and at the Smithsonian Institution. Trained Museum volunteers will teach simple origami

models to Museum visitors at the Origami table adjacent to the tree. The table will be manned during all Museum hours while the Holiday Tree

is on exhibit.

The Origami tree tradition was begun in 1972 by Alice Gray, Scientific Assistant Emerita in the Department

of Entomology.

Origami volunteers are trained by Alice Gray and Museum volunteer origami specialist Michael Shall.

Fables From Far and Near

Sunday, November 10, 2:00 and 4:00 p.m.
Kaufmann Theater
Free

Tales from Africa, black America and the Caribbean will be told at the Museum in the special family program *Fables From Far and Near*.

Kwame Nkrumah, a native Ghanaian, will tell African tales featuring Anansi, a trickster spider who lives by his wits.

Cheryl Byron, an actress and raconteur from the Caribbean (a native Trinidadian) will invite audience participation in the telling of *The Bull and the Bird*.

In southern dialect, Yocheved Bat-Imedti will tell Uncle Remus tales from

America. Originally collected after the Civil War by Joel Chandler Harris, these tales include favorite African-American animal characters. The star of these stories is Brer Rabbit, a trickster character. The Uncle Remus stories will be accompanied by music by the accomplished composer and musician Adeyemi Tuck.

This program is sponsored by the Department of Education. Seating is on a first-come, first-served basis, so Members are advised to arrive early to avoid disappointment.

Folding Flyers

Saturday, December 7
Free, and open only to Members

This year's Eighth Annual Origami Workshop is a celebration of things that fly. Members are invited to have fun transforming colorful squares of paper into airplanes, flapping birds, bats, butterflies, and the Japanese crane (a symbol of peace). There will also be special sessions geared for children four through six years of age. These junior folders will create airplanes too, as well as swans, hearts, and jumping frogs.

The sessions will be taught by Museum volunteers and members of the Friends of the Origami Center of America. These are the same experts whose nimble fingers fold the pieces for our Origami Holiday Tree. All participants in the program will receive a workbook and some Origami paper, so that they can practice and hone their paperfolding skills at home.

For a listing of times, and to register for the workshop, please turn to the November Members' Program Coupon on page 3.



Museum Notes

Special Exhibitions

Tiger Tiger Burning Bright. Through January 12 in the Naturemax Gallery. This exhibition includes 64 exquisite color photographs of Indian wildlife.

Vijayanagara: Where Kings and Gods Meet. Through January 26 in the Akeley Gallery. The temples, palaces, sumptuous pavilions, and other aspects of Vijayanagara, the greatest of all ruined cities in southern India, are featured in this exhibition.

Jewels of India. A succinct view of the rich natural history and cultural heritage of India, as reflected in the Library's rare book, photographic and general collections.

From the Museum's Attic. Through January 20. The Museum Library's memorabilia collection is like grandmother's attic — full of Museum mementos such as utensils and keepsakes from expeditions, family portraits and snapshots, diaries, and letters. This exhibit displays memorabilia of Teddy Roosevelt, Roy Chapman Andrews, and others. In the Library Gallery on the fourth floor.

Holiday Origami Tree. This year's glorious tree can be seen in the Roosevelt Rotunda

from November 26 through January 5. Pterodactyls, pelicans, and peacocks are among its festive Origami ornaments.

Masterpieces of the American West. Opens November 29. Please see page 3.

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the history and exhibits of the Museum's most popular halls. They leave regularly from the first-floor Information Desk. If you wish to join a free tour, please ask at an Information Desk for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For additional information, write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, 2:00 to 4:30 p.m.; Saturday and Sunday, 1:00 to 4:30 p.m. It is closed on Mondays and holidays.

In the **Discovery Room**

children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m. This month the People Center continues to celebrate the cultural richness of India. Please turn to the calendar on page 8 for a listing of times and activities.

Naturemax Information

On New York's largest movie screen — four stories tall and sixty feet wide — the drama of space unfolds, as Museum visitors join astronauts aboard the space shuttle in Naturemax's newest film *The Dream is Alive*.

In addition, Friday and Saturday double features include all-time Naturemax favorites *To Fly!* and *Living Planet*.

The box office is located in the 77th Street lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% dis-

count at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$7.00 for cars and \$8.00 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

For a list of other parking lots in the area, please call the Membership Office at (212) 873-1327.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to

4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Monday-Friday, 11:00 a.m. to 4:00 p.m. Tea: Daily, 4:00 to 5:00 p.m. Dinner: Wednesday, Friday and Saturday, 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:30 p.m.

Coat Checking. Daily from 10:00 a.m. to 5:30 p.m. in the basement. Rate is \$.50 per item.

Southwestern Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300.

Sun

Mon

Tue

Wed

Thu

Fri

Sat

November 1985

American Museum of Natural History

The Museum receives substantial support from a number of major sources. We are particularly grateful to the City of New York which owns the Museum buildings and provides funds for their operation and maintenance; and to the New York State Council on the Arts, National Science Foundation, National Endowment for the Arts, National Endowment for the Humanities, Institute for Museum Services, 300 corporations, 60 private foundations, 475,000 members, and numerous individual contributors.

3 1:00 to 4:30 p.m. Celebrating India. The Lion and the Brahmin, an animal tale with the East-West Fusion Theater; Performing Arts (masks, puppets, and gestures) with Teviot Fairservis Purchot; The Indian Family, a slide talk with Anne James. Leonhardt People Center. Free.

10 1:00 to 4:30 p.m. Celebrating India at the Leonhardt People Center. Same as November 9.
1:30 p.m. N.Y. Shell Club. Room 419. Free.
2:00 and 4:00 p.m. Fables From Far and Near. Storytelling. Kaufmann Theater. Free. Page 7.



Scottie Dog joins a host of other Origami figures on this year's Origami Holiday Tree.

17 10:00 a.m. to 5:30 p.m. A Weekend of Gem Appeal. Preregistration required. Page 4.
1:00 to 4:30 p.m. Celebrating India at the Leonhardt People Center. Same as November 16.
10:30 a.m. through 2:30 p.m. Members' Behind-the-Scenes Tours. Tickets required. Page 2.
1:00 p.m. American Cetacean Society. Room 319.

24 11:00 a.m., 1:00 and 3:30 p.m. Another Side of the Rainbow: Members' Family Program. Kaufmann Theater. Tickets required. Page 2.
1:00 to 4:30 p.m. Celebrating India at the Leonhardt People Center. Same as November 23.

5

6 7:00 p.m. African Influence In Uruguay. Linder Theater. Free. Page 6.
7:30 p.m. Come Into My Parlor. Members' Program. Main Auditorium. Tickets required. Page 2.
7:45 p.m. Amateur Astronomers Association. Kaufmann Theater. Free.

7 7:00 p.m. Systematics of Social Behavior. Public lecture with Stephen Jay Gould, Sarah Hrdy, and B.F. Skinner. Main Auditorium. **Sold out from October issue.**
The 6:00 and 7:30 p.m. Naturemax double features are cancelled.

8 8:00 p.m. The Evolution of Social Behavior. Public lecture with Stephen Jay Gould, Sarah Hrdy, and B.F. Skinner. Main Auditorium. **Sold out from October issue.**

9 1:00 to 4:30 p.m. Celebrating India. Sacred Dances of South India with Govinda and Anuradha Nampally; The Caste System, a slide talk with Nandini Anand; Streets of India — A Photographer's View, with Arvind Garg. Leonhardt People Center. Free.

14

13 7:00 p.m. Manos a la Obra: The Story of Operation Bootstrap, and Los Surcos. Films and discussion. Main Auditorium. Free. Page 4.

15 7:00 p.m. N.Y. Microscopical Society. The Role of Microscopy in Art Conservation. Room 419. Free.

16 10:00 a.m. to 5:30 p.m. A Weekend of Gem Appeal. Preregistration required. Page 4.
1:00 to 4:30 p.m. Celebrating India. Music from the North — sitar and tabla with Suhas Chakraborty, Badal Roy, and Arooj Lazewal; Women in Indian Folklore, a slide talk with Nandini Anand. Leonhardt People Center. Free.

20

19 7:30 p.m. Fiesta Boinqueña. Celebration of the discovery of Puerto Rico with Los Pleneros de la 21, Sonido de la Plena, and Sergio Ortiz y su Grupo Tipico Cundiamor. Live music, with bilingual discussion. Main Auditorium. Free. Page 4.
8:00 p.m. N.Y. Entomological Society. Room 323. Free.

21 5:15 to 7:30 p.m. Members' Behind-the-Scenes Tours. Tickets required. Page 2.

23 1:00 to 4:30 p.m. Celebrating India. Mohini Attam and Bharata Natyam Dances from South India with Padma Chittampalli; Karnataka Vocal Music with Balambal Natarajan; Stone Ob-servatories of Sasai Jai Singh, with Paul Santiacon. Leonhardt People Center. Free.

22

26 8:00 p.m. Linnaean Society. People Center. Free.
First day to view the Holiday Origami Tree in the Roosevelt Rotunda.
Hayden Planetarium Closed.

27 8:00 p.m. Met Grotto; National Speleological Society. Room 129. Free

28 Thanksgiving Day Museum Closed.

29 Masterpieces of the American West opens in Gallery 3.

30 1:00 to 4:30 p.m. Celebrating India. The Lion and the Brahmin — an animal tale by the East-West Fusion Theater; Performing Arts (masks, puppets, and gestures) with Teviot Fairservis Purchot; The Indian Family, a slide talk with Anne James. Leonhardt People Center. Free. **Please note: these programs will be repeated on Sunday, December 1.**

ROTUNDA

For Participating, Donor, and Contributing Members of the American Museum of Natural History, Vol. 10, No. 11 December 1985



"Portrait of an Indian Chief" by Valentine Bromley.

Masterpieces of the American West

In Gallery 3 through February 16

As emigrants traversed the American West in search of prosperity, freedom, and adventure, artists went among them to depict the flora, fauna, and regional cultures of this "new territory." Some, like George Catlin, strove to document the manners and customs of Native Americans before they disappeared. Others, like Frederic Remington supplied Easterners with a view of the West that was exotic, romantic, and macho.

Masterpieces of the American West: An Artistic Look at 150 Years of the Wild West, features more than 70 paintings

that chronicle the exploration, development, and growth of the American West. In addition to Catlin and Remington, the exhibition includes works by Georgia O'Keeffe, Jackson Pollock, Asher B. Durand, Newell Convers Wyeth, and Charles Russell.

The paintings are on loan from the Anschutz Collection, which contains hundreds of pieces of art that depict the American West and Native American life through a century-and-a-half of American history.

Among the works that can be seen are Catlin's "Mystery Lodge" (1832),

Durand's "Indian Rescue" (1846), Frankenthaler's "Phoenix, 1976," Remington's "Tum Him Loose Bill" (1892), and Forsman's "Dirt Rider" (1980).

In conjunction with the exhibition, two Membership programs will explore myths and realities of cowboys, native Americans, women, and blacks in the American West. Our January Members' tour will highlight Western paintings and artists. Three articles on page 5 contain more detailed information.

The *Masterpieces* exhibition is supported by a grant from Mobil.

Celestial Baroque

As the beautiful strains of Vivaldi's *The Four Seasons* and other baroque favorites fill the air in this live concert, Members can watch the stars and enjoy laser visuals beneath the dome of the Sky Theater. Please note that the concerts listed in the November *Rotunda* are sold out. To register for the new date and times, please use the coupon on page 3.

Kwanzaa

For seven days each year, Kwanzaa honors the African roots of black Americans. Turn to page 9 for news of dance, music, and other events at the Museum that celebrate this unique and important holiday.

Nanook of the North

One of the most touching documentaries of all time will be shared with Members this season. Article on page 2.

Star Courses

Celestial navigation, beginning astronomy, and myths of the sky are just a few of the fascinating topics covered in this season's *Courses for Stargazers*. A full listing is provided on page 10.

ABC's

A is for . . . arachnids, of course. Turn to pages 7 and 8 for the 1985 ABC's of the American Museum Of Natural History.

Folding Flyers



A limited number of tickets are still available in our Holiday Origami workshops for Members of all ages. This year's workshops feature creatures that fly, like the two storks above. For date and time information, please see the coupon on page 3. Also, view birds and hundreds of other animals on the Origami Holiday Tree in the Roosevelt Rotunda.

Gargantuan Guests

In the Roosevelt Rotunda through January 6

Two rather large guests from China are currently residing in the huge Roosevelt Rotunda on the second floor, because it is the only place in the Museum that is large enough to accommodate them.

One, *Mamenchisaurus*, is a 72 foot long dinosaur whose neck alone measures 33 feet. This neck has 19 elongated vertebrae with overlapping spines to help support it, and is believed to be the longest neck of any animal that ever lived.

The other guest is

Tsintaosaurus, 23 feet in length, with a well-developed horn on its head. It belongs to the duck-billed dinosaur group which flourished during the Cretaceous period, 96 to 65 million years ago.

The dinosaurs are replicas of the first large dinosaur skeletons ever mounted in China. The Institute of Vertebrate Paleontology and Paleoanthropology in Beijing reconstructed the original skeletons.

Chinese scientists collected the bones of *Tsintaosaurus*

from a site near Beijing, while they found the bones of *Mamenchisaurus*, a 140 million year old dinosaur, in a "dragon bone" site in Szechuan.

Some Chinese people believe that fossil deposits are the remains of dragons and have used their bones as folk remedies. Two of the scientists who helped excavate the dinosaurs are currently at the Museum studying our fossil collections. The two dinosaurs will be on exhibit in the Rotunda through January 6.

Nanook of the North

Thursday, December 26
11:00 a.m., 1:00 p.m., and 3:00 p.m.
Free and open only to Members

As another winter descends upon New York, Members are invited to discover how the Eskimos coped with their harsh, arctic environment when we screen the silent film classic *Nanook of the North*. The film provides a warm and sensitive portrayal of Nanook, an Eskimo whose name means "bear", his family, and his world. It is filled with scenes of Nanook as he hunts for seal, kayaks in arctic waters, dogsleds through the snow, and builds an igloo. In one of the film's most charming scenes, Nanook teaches his son how to use a bow and arrow with the help of a polar bear

sculpted in the snow.

Nanook of the North was completed in 1920 by the renowned filmmaker Robert Flaherty. It is considered to be the first documentary ever made. Flaherty traveled to Northern Canada with a generator, a phonograph, a film processing outfit, and two cameras designed by Carl Akeley. Choosing *Nanook* as his subject because of his prowess in hunting, Flaherty created one of the most endearing films of all time.

To register for the program, please use the December Members' Programs Coupon on the following page.

ROTUNDA

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The Story Concert Players

Sunday, January 26 at 10:30 a.m. and 2:30 p.m.
Kaufmann Theater
\$3.00 for Members, \$5.00 for non-members

Members are invited to join the multi-talented actress and singer Christine Campbell and the musicians of the Story Concert Players for a delightful day of *Tales and Tunes from Around the World*.

Campbell will take the audience to the West Indies to hear a popular medley of Jamaican folk tunes and a dramatic poem about a Jamaican Banana Woman. Members will also journey to Russia to listen to the enchanting tale of the Snow Maiden accompanied by the music of Aram Khachaturian. The program also draws from

North American folklore, including a new version of the Paul Bunyan legend, and a potpourri of American and Mexican folk tunes.

A live chamber music ensemble of piano, violin and clarinet will accompany Campbell. In addition, the audience will be encouraged to sing, clap along, and participate throughout the performance.

At the program's conclusion, children may participate in a series of informal workshops. They can handle the violin and the clarinet, learn about the different sounds they produce,

and how they are constructed. A folk traditions workshop will teach children about the oral traditions of folk tales and tunes, as well as provide an experience in the dramatic arts.

The Story Concert Players are directed by the prize-winning composer-playwright Roselyn Winokur. They have toured widely with their imaginative multi-arts musicals, and have performed at Lincoln Center's Alice Tully Hall and the Brooklyn Academy of Music.

To register, please use the adjacent December Members' Programs Coupon.

In Praise of Hands

Thursday, January 9, 6:00 p.m. and 7:30 p.m.
Films: Kaufmann Theater Artists: Leonhardt People Center
\$4 for Members, \$8 for non-members

The intricacies of gesture, the communication expressed by a touch, the majesty of great architecture, the utensils that mark the continuity of everyday life, the food we prepare, the clothes we wear, and the works of art we view are all created by the skilled human hand.

In Praise of Hands is a celebration of hands, and what they are capable of creating. After seeing three films in the Kaufmann Theater that feature arts and crafts from different parts of the world, program participants will meet three artisans in the Leonhardt People Center: a mask maker, a weaver, and a violin maker.



Suzanne Benton

Her work has been acclaimed throughout the United States, as well as in 16 foreign countries.

Born in Nuremberg, Germany, Peter Eibert apprenticed with master violin maker Heinrich Lang at the age of 14. After immigrating to the United States in 1955, he worked as a restorer of classical string instruments with the Metropolitan Music Company, and on 57th Street with Dimitrij Didcenko. Eibert currently has his own workshop in Westchester where he builds, restores, and repairs violins, violas, cellos, and bows. He also restores double basses.

Eibert will display violins in various stages of creation, as well as several of the tools he uses in traditional violin making. He will also show slides of violins being fashioned and repaired in his workshop.

Sitting at her Andean body-tension loom, Elayne Zorn will share with participants her abundant knowledge and weaving technique. She will also demonstrate how to spin and ply on a traditional spindle. Participants will view several of Zorn's textiles, which are based on traditional Andean weaving methods and styles. Alpaca fleece and traditional textiles will also be on display.

Zorn has been a hand weaver since 1970. She is also an anthropologist whose research focuses on the production and marketing of weaving in Peruvian highland communities. This combination of artistic ability and scientific inquiry has enabled her not only to study the textiles of Peru, but to weave them side by side with native Peruvians.

To register for *In Praise of Hands*, please use the adjacent December Members' Programs Coupon.

The Artists
Leonhardt People Center,
Second Floor

Suzanne Benton fashions her masks of steel, bronze, and copper. To Benton, and to those who know her work, these masks are far more than an art form to be viewed on an aesthetic level. They are explorations of myth, ritual, and imagination. Benton will display several of her powerful masks, and speak with participants about her work. Participants may also view a videotape showing the creation of a metal mask, from its origins in the scrap metal yard to its completion in the artist's studio.

In addition to being a sculptor, Benton is also an educator and performer who uses her masks to tell stories and create participatory workshops.

The Films Kaufman Theater

In Praise of Hands (*Hommage Aux Mains*). (28 min.) This color film focuses on the arts and crafts of many different countries, including Japan, Nigeria, Poland, Finland, Mexico, India, and Canada. While there is no narration, the film interweaves the conversations of artisans and the rhythm of their work with the music of their native countries. The crafts portrayed range from pottery and carving to metalwork and puppetmaking. The excellent camerawork provides many closeups of hands, as they create items of beauty and utility.

Master Weavers of the Andes. (15 min.) In this beautifully filmed color documentary, viewers observe the variety of designs, colors, and techniques used by Peruvian weavers who have kept their ancient craft alive in isolated villages on the slopes of the Andes. The cultural pride taken in this art is a vital part of family and village life in Peru.

The Violin Maker. (12 min.) In this silent, black and white portrait of an old violin maker working in his cluttered studio,

December Members' Programs Coupon

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone: _____

Membership category: _____

Total Amount Enclosed: _____

Please make check (if applicable) payable to the American Museum of Natural History, and mail with a self-addressed, stamped envelope to: December Members' Programs, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.

Folding Flyers. Saturday, December 7. Free, and open only to Participating, Donor, and Contributing Members. Please indicate a first, second, and third preference of times.

_____ 10:30 a.m. _____ 11:30 a.m. _____ 2:00 p.m.

_____ 3:00 p.m. _____ 4:00 p.m.

Number of people for regular workshop: _____

Number of adults and children for young children's workshop (ages four to six) Children must be accompanied by an adult: _____

The Four Seasons. Wednesday, January 8, 7:00 and 9:00 p.m. \$6 for Members, \$9 for non-members. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to one. Additional tickets are at the non-members' price. Please indicate a first and second choice of times, if possible.

_____ 7:00 p.m. _____ 9:00 p.m.

Number of Members' tickets at \$6.00 each: _____

Number of non-members' tickets at \$9.00 each: _____

Total amount enclosed for program: \$ _____

Nanook of the North. Thursday, December 26. Free and open only to Members. Participating, Donor, and Contributing Members are entitled to four free tickets. Associates are entitled to one. Additional tickets are \$2.50 each. Please indicate a preference of times, if possible.

_____ 11:00 a.m. _____ 1:00 p.m. _____ 3:00 p.m.

Number of Members' tickets: _____

Number of tickets at \$2.50 each: _____

Total amount enclosed for program: \$ _____

In Praise of Hands. Thursday, January 9. \$4.00 for Members, \$8.00 for non-members. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price. Associates are entitled to two. Please indicate a first and second choice of times, if possible.

_____ 6:00 p.m. _____ 7:30 p.m.

Number of Members' tickets at \$4.00 each: _____

Number of non-members' tickets at \$8.00 each: _____

Total amount enclosed for program: \$ _____

Tales and Tunes from Around the World. Sunday, January 26. Participating, Donor, and Contributing Members are entitled to four tickets at the Members' price of \$3.00. Associates are entitled to one. All other tickets are \$5.00 each. Please indicate a first and second choice of times, if possible.

_____ 10:30 a.m. _____ 2:30 p.m.

Number of tickets at \$3.00 each: _____

Number of tickets at \$5.00 each: _____

Total amount enclosed for program: \$ _____

Please look over your coupon before mailing it to the Museum. Have you included your name and address? Does the total amount enclosed equal the sum of the amount enclosed for each program? Thank you for checking.

Native American Film Festival

Saturday, December 14
10:15 a.m. to 6:00 p.m.
Kaufmann Theater
Free



Courtesy, Museum of the American Indian

Crow leader Robert Yellowtail in *Contrary Warriors: A Story of the Crow Tribe*.

The preservation of cultural heritage and the fight for indigenous rights will be the focus of this year's Native American Film Festival. The films feature Indian communities in both North and South America, ranging from the Micmac Indians of Maine to an Indian group that lives on the Venezuelan frontier. Although the histories and ways of life of these groups may contrast sharply, they all share common concerns and problems in trying to survive in the modern world.

All films will be introduced by the filmmakers or other experts. A complete schedule follows:

10:15 a.m. **RHYTHM OF THE EARTH** (1985, 60 mins.) Alan Lomax. The well-known ethnomusicologist uses film to explore a provocative theory of Native American dance styles throughout the Western hemisphere.

11:45 a.m. **PANARE: SCENES FROM THE FRONTIER** (1982, 60 mins.) Chris Curling. The situation of a Venezuelan Indian people balanced at the edge of a geographical and cultural frontier.

1:00 p.m. **EARNING OUR KEEP** (1985, 45 mins.) Karen Carter and Herald Prins. Micmac Indians of Maine use their traditional craft of basket-making as a means of economic survival.

2:00 p.m. **HOME OF THE BRAVE** (1985, 53 mins.) Helena Solberg-Ladd. An international overview of indigenous rights issues, this film focuses on activists speaking out on behalf of their people.

3:15 p.m. **BROKEN RAINBOW** (1985, 70 mins.) Maria Florio and Victoria Mudd. This analysis of the Hopi-Navajo land dispute explores external factors affecting the situation,

and presents the plight of the 10,000 Navajo being relocated.

4:45 p.m. **CONTRARY WARRIORS: A STORY OF THE CROW TRIBE** (1985, 60 mins.) Connie Poten and Pamela Roberts. A profile of Robert Yellowtail, oldest member of the tribe and a long-time political figure who has fought for Crow Indian land rights.

The festival is organized by the Museum of the American Indian as part of its annual Native American Film and Video Festival and is presented in cooperation with the Education Department of the American Museum of Natural History. It is made possible by grants to the Education Department from the Helena Rubinstein Foundation and the Vincent Astor Foundation.

Seating is on a first-come, first-served basis. For further information call (212) 873-1300, ext. 559.

Ladakh: Modernization Without Destruction

Wednesday, December 18
Kaufmann Theater
7:00 p.m.
Free

Ladakh, situated in northernmost India high in the Himalayas, is home to one of the purest remaining enclaves of Tibetan Buddhist culture. Despite the harsh climate of their environment, the Ladakh people have managed not only to survive, but to thrive, and to create a rich and sustaining cultural and religious heritage.

For centuries, Ladakh's isolation has kept this well-accepted and prosperous culture intact. But during the past ten years, the area has become increasingly accessible to foreigners. Exposure to Western cultures, largely through an influx of free-spending tourists, has convinced many Ladakhis that their way of life is inferior, and has created a desire for products which must be imported across the Himalayas at considerable expense. Other changes too have occurred — in food, building materials, and lifestyles — as a result of contact with the "modern world."

What might this mean for Ladakh's future, and what sort of approach might allow Ladakh to absorb aspects of the Western world without losing its

own heritage?

Swedish linguist Helena Norberg-Hodge first visited Ladakh 11 years ago as a member of a film crew. Intrigued by the language and people of this land, she continued to return even after the film was finished, and became alarmed by the changes that were beginning to occur. She became involved in efforts to help Ladakh meet the outside world without becoming submerged in it. These efforts include the use of solar heating to avoid having to import expensive and polluting fossil fuels, and the sponsorship of environmental and health education programs.

This month Norberg-Hodge will present a slide show on Ladakh of the past and present. The presentation will include pictures from a recent visit by the Dalai Lama to a new technology demonstration center in Ladakh. Norberg-Hodge is being accompanied by Thupstan Chhewang, the King of Ladakh.

The program is free and open to all Museum visitors. Since it promises to be quite popular, and seating is limited, Members are advised to arrive early.



The Dalai Lama examines a solar oven during a visit to Ladakh.

Masterpieces of the American West: Cowboys and Indians

Tuesday, December 17
7:00 p.m., Main Auditorium
Free for Members, \$5.00 for non-members

"Morally as a class they are foul-mouthed, drunken, lecherous, and utterly corrupt."
— Frank Lesley *Illustrated Weekly*, 1883

"The cowboy will not submit tamely to an insult, nor has he an overall fear of shedding blood. He does possess to a very high degree the stern, manly qualities which are important to a nation."
— Theodore Roosevelt, 1888

Which stereotype about the American cowboy — if either — is closer to the truth? And what historical changes between 1883 and 1888 might have altered popular conceptions of the cowboy?

The cowboy is by no means the only Western character to seemingly waver in posterity between reality and stereotype.

Who in the over-thirty age group can forget the once popular Western film depictions of bloody struggles between cowboys and whooping bands of tomahawk-wielding "Injuns"?

Other stereotypes of Indians may seem on the surface to balance out the negative ones — like the "noble savage," a last

link to the Eden we have left behind, and the beautiful Indian princess.

In *Cowboys and Indians*, two guest speakers from the Smithsonian Institution will help the audience navigate among myth and reality, stereotype and history, as they also provide a fascinating context for the *Masterpiece* paintings.

Rayna Green is an exhibition planner and consultant for the development of an American Indian Program at the National Museum. She has lectured and written widely on topics such as Native American women, ethnobotany, folklore, and ethics.

Green will discuss the development of various images of the



Frederic Remington's "Turn Him Loose, Bill", on canvas, 25" x 33"

Indian in American culture as they have appeared in film, advertising, song, folklore, and oral traditions.

Lonn Wood Taylor will explore many of the historical and social frameworks of cowboy

stereotypes, from the Mexican ranchero to the outlaw, the independent, all-American, gun-toting hero, and the present day Marlboro man.

Taylor is Deputy Assistant Director for Public Programs at the

National Museum. A native Texan, he has for many years been intrigued by the history and myth of the American cowboy.

To order tickets for *Cowboys and Indians*, please use the coupon below.

Members' Highlights Tour of the Month Masterpieces of the American West

Free and open only to Members

In its early days, Western art was a faithful rendering of the dramatic and unique landscapes of the unknown Western frontier. Later, this tradition was replaced by fanciful illustrations of trappers, cowboys, "noble savages," and open skies. Both eras are represented in *Masterpieces of the American West*.

In addition to many paintings by Western artists (see page 1 for further details), the exhibition will be supplemented by a

Hopi Kachina, a full-feathered headpiece, a dirt bike, and Buffalo Bill's saddle and guns. In our January Members' Highlights tour, participants will explore the old and new American West as knowledgeable volunteer tour guides highlight several of the paintings in *Masterpiece*, and discuss the development of American Western art.

To register for this January Members' tour, please use the adjacent coupon.

Masterpieces of the American West: Pioneers the History Books Forgot

Thursday, January 30, 7:00 p.m., Main Auditorium
Free for Members, \$5.00 for non-members

Black people arrived with Columbus, and explored with Balboa, Cortez and Fremont. They rode with Billy the Kid, Kit Carson, Geronimo and General Custer. They were gold-diggers, cattle-branders, pathfinders, homesteaders, outlaws, and sheriffs. Five thousand Black cowboys helped drive cattle up the Chisolm Trail. Why then, do so few history books contain these facts, and do so few people know them?

Women were an integral part of Western expansion. Many did not want to journey West, but did so because they were expected to follow their husbands' leads, and out of a fierce will to keep their families together. To other women, particularly young ones, the Westward journey was a great adventure never to be forgotten, and a break with older, more traditional, and more limiting female roles.

In *Pioneers the History Books Forgot*, two guest speakers give Members the opportunity to hear about "the other West."

William Loren Katz, teacher, lecturer, and author of 20 books on blacks and other minorities, will discuss the black men and women who rode all the Western trails. Members will hear about and see slides of black cowboys, "buffalo soldiers," and even black Indians.

Elizabeth Cunningham is curator of the Anschutz collection,

from which the *Masterpieces* exhibition is formed. She will discuss the stereotypes of women in the West, including the "drudge," "the madonna of the prairie," and the "bad woman." She will also share information about the very real roles women played as cowgirls, business-

women, adventurers, painters, entrepreneurs, and at the heart of the wagon-train family. Members will view slides of paintings of and by women in the West.

To register for *Pioneers the History Books Forgot*, please use the coupon below.

Masterpieces of the American West. Open to Members only. Please indicate a first, second, and third choice of dates and times.

Sunday, January 5 10:30 a.m. 11:30 a.m.
Wednesday, January 8 6:00 p.m. 7:00 p.m.
Sunday, January 12 10:30 a.m. 11:30 a.m.
Wednesday, January 15 6:00 p.m. 7:00 p.m.
Saturday, January 18 10:30 a.m. 11:30 a.m.
Sunday, January 26 10:30 a.m. 11:30 a.m.

Number of tickets: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Telephone: _____

Membership category: _____

Please mail with a self-addressed, stamped envelope to: *Masterpieces*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024. Registration closes December 20.

Masterpieces of the American West. Each program is free for Members and \$5.00 for non-members. Participating, Donor and Contributing Members are entitled to four free tickets per program. Associates are entitled to one. Additional tickets are \$5.00 each.

Cowboys and Indians. Tuesday, December 17. Please send me _____ free tickets and _____ tickets at \$5.00 each.

Pioneers the History Books Forgot. Thursday January 30. Please send me _____ free tickets and _____ tickets at \$5.00 each.

Total Amount enclosed: \$ _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Telephone: _____

Membership category: _____

Please make check (or money order) payable to the American Museum of Natural History and mail with a self-addressed, stamped envelope to *Masterpieces Programs*, Membership Office, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.

To write the Year in Review section of the December Rotunda each year is to attempt to surmount the insurmountable. How does one, in a mere two pages, do justice to an institution that serves more than 2.5 million visitors, and offers more than 300 programs to Members and the public each year, employs 600 individuals, and houses research departments whose inquiries and associations span the greater part of the globe? Only a tiny portion of the research, exhibitions, programming, and daily accomplishments of this Institution can be covered in one centerfold. Since the number of paragraphs that can fit on two pages is finite, a well-known finite system of classification was chosen. What follows are the

1985 ABC's of the American Museum of Natural History

Arachnid research inspired the steady work of several scientists in the Department of Entomology. Dr. Platnick worked on a taxonomic revision of genus *Platyoides*, a group of African spiders that are remarkable for their completely flattened bodies. Six different spider genera have developed flattened bodies. Platnick wants to know how closely these genera are related. Did this body shape evolve once or is it a product of parallel evolution? This primarily African group has its closest relatives in South America.

Bats of the world are Dr. Karl F. Koopman's (Mammalogy) main area of interest. He is currently writing a volume on the systematics and distribution of bats on all levels from the order to subspecies. The volume will include information on both taxonomy and ecology. While much of the information to be included in this volume has already been published, Koopman is also studying specimens both here and abroad to solve numerous systematic discrepancies in the scientific literature. The volume, entitled *Systematics of Mammals: Chiroptera*, will be the most comprehensive of its kind yet to be published.

Community Programming is one of the Museum's most popular attractions. The many excellent community programs organized and presented by the Department of Education this year have included workshops on maskmaking, Peruvian weaving and other arts, as well as celebrations of Afro-Caribbean culture through dance and music.

Damsel fish, like many other fish species, can be hermaphroditic. Some fish may be both male and female at the same time, while others may "switch" from one sex to another during the course of a lifetime. In their research on the two lined damsel fish, a coral-reef species occurring in Guam, C. Lavett Smith (Ichthyology) and Abbey Schwartz (Independent researcher) have found evidence that social conditions combine with hereditary factors to determine a fish's sex. In the case of the two lined damsel fish, when the male keeper of a "harem" dies, a large female sometimes turns into a male and takes his place. Further details about the causes and mechanisms of sex changes in fish are under investigation.

Exhibitions at the Museum this year covered natural history topics as varied as Mayan civilization, the Asante Kingdom, the art of the Cameroons, the articulation of mammalian bones, the wildlife of India, and Audubon's life and art. Work is currently underway on a new permanent hall that will feature the art, architecture, and social structure of South American cultures. The South American Hall is scheduled for completion in 1987.



Bronze weight from Asante: Kingdom of Gold

Forensic research is a fascinating and important — if little-publicized — branch of science. At least two Museum scientists periodically contribute their expertise to this area. Harry L. Shapiro (Anthropology) has assisted agencies in identifying the races of children who are up for adoption. He has also identified bones for the police department as to their race, age, and sex. The police department also occasionally calls upon Louis Sorkin (Entomology) to identify larval and adult stages of insects that have been found on or near corpses. Such analyses may help to determine both the time and place of death.

Ghost possession. In North India, village women believe that women who die young and without children become ghosts. If a young woman falls unconscious and speaks with strange voices, she is said to be possessed by a ghost. In a recent publication (1985, AMNH-AP, vol. 60, pt. 2), Ruth and Stanley Freed describe the anthropological, psycho-medical case history of Sita, a North Indian woman who suffered possessions and fits between the ages of 15 and 35. Sita learned early that many of her infant siblings died because a ghost took their souls. She believed that three of her girl friends who had died in their teens without having borne children had become ghosts. After her wedding, Sita was possessed by them. One of them was the ghost of her cousin, who had committed suicide when her father discovered her pregnancy. Anthropologists, neurologists, and psychologists call possessions and fits alternate mental states, and attribute them to biological, cultural and psychological stresses which affect the central nervous system. Sita's case history reveals the inability to digest milk, a trait inherited from her parents, which led to a calcium deficiency. Other physical disabilities and psychosocial factors contributed to Sita's alternate states, which she continued to attribute to possession by her cousin's ghost. Despite her belief in ghost possession, Sita was an intelligent woman and a positive force for education in her family.

Halley's Comet will soon be visible in the sky from many areas of the earth's surface. Several Museum activities and programs have honored the famous comet this year. The American Museum-Hayden Planetarium sponsored several courses for both adults and children about Halley's, and the new sky show *Halley's Comet: Once in a Lifetime* has been shown to a packed Sky Theater since November. Most recently, astronomer Stephen Moran addressed a large group of Museum visitors about the comet in the Members' Program *Here Comes Halley's*.

Ivory billed woodpeckers are undoubtedly among the world's rarest birds. When Lester L. Short (Ornithology) and bioacoustician George Reynard (Cornell University) traveled to Cuba in late February, they withstood heavy rains and covered many miles of ragged country in search of this magnificent bird. Although no ivory billed woodpeckers were seen, Short did find evidence that they were in the area. An old woodsman reported seeing a bird that fit the description of an ivory-bill. When Short explored the area pointed out to him by the woodsman, he found three pine trees stripped of their bark by a bird that, in this region, could only have been an ivory-bill. Short will soon return to Cuba to continue the search for this rare, elusive bird. This research marks a rare and very important cooperative effort between Cuba and the United States.

Jadeitites are unusual rocks made up primarily of the mineral jadeite. They represent one of the varieties of jade. When George Harlow (Mineral Sciences) analyzed emerald-green jadeite to find the origin of its beautiful color, he found that the emerald-green hue is caused by chromium, which is also the coloring agent present in emeralds. Electrons in the outer shells of chromium have resonances that absorb red and violet light. Green light, however, is transmitted. Emerald-green jade is normally associated with Burma. Recently, however, Harlow found this rock in Guatemala, the presumed source of Maya jade. Harlow looks forward to continuing this study because research on this subject (and on jadeite in general) promises to touch upon several different disciplines including plate tectonics, mineralogy, archaeology, and rock genesis.

Kingbirds and their allies are large conspicuous flycatchers of open country. Wesley E. Lanyon (Ornithology) determined that these birds are monophyletic (all members of the same evolutionary lineage). His next objective is to determine relationships within other flycatcher lineages. To make such determinations, Lanyon studies the structure of the birds' syringes, sound-producing organs that are morphologically distinguishable between groups of species. He is also looking at the nesting behavior and plumage characteristics of these birds as secondary clues to relationship.

Long-tailed macaques are not only capable of surviving in environments altered by human activity, but seem to thrive in them. Ian Tattersall (Anthropology) went to Mauritius to explore the popular belief that the macaques are responsible for destroying much of the flora and fauna of the island's forests. He found the macaque to be uncommon in the aboriginal forest, yet common in secondary environments that had been altered by human habitation. Tattersall's guess is that the macaques have followed humans into the interior as humans have decimated the aboriginal environments. Humans, not monkeys, are the main culprits.



Male long-tailed macaque.

Members of all ages attended a wide selection of programs this year. Highlights included *Tantric Rituals*, the first U.S. performance of the Tibetan Gyuto Tantric Monks, a very successful Behind-the-Scenes Tour of the Department of Anthropology, and *Return of the Osprey*, a beautiful film about the ecology and conservation of this magnificent bird of prey. Children enjoyed a special screening of the Planetarium Sky Show *Max's Flying Saucer*, after which they made their own flying saucers. And after viewing four films about young North Americans in the First Annual FACES Film Festival, children created scores of beautiful masks.

Natural History Magazine dedicated its eighty-fifth anniversary issue to "State of the Earth 1985," a 24-page supplement that related stressed natural systems to crises in the world economy. In this report, Lester Brown and several co-authors analyzed the pressures of human society on basic resources such as water, forests, and topsoil. They also pointed to public policy changes that might lead us towards a sustainable ecosystem. Other highlights of 1985 included *Fruit for All Seasons*, an article addressing co-evolved relationships between plants and animals, and *Family Feuds*, featuring competition and cooperation within animal groups. Articles written in conjunction with Museum exhibitions included three pieces on the life and work of John James Audubon, and one about the decoding of Maya hieroglyphics.

Osmotic regulation is a process carried out by many marine animals when their normal seawater environment is diluted. This may happen inshore after a heavy rain, or may occur when the animal migrates up an estuary into a river. The regulation of salt and water balance helps insure that the blood of the animal does not become too dilute to enable normal bodily functions to continue, and that the animal does not swell in size. Linda H. Mantel (Invertebrates) has been studying the processes by which osmoregulation is controlled in two common species of crab, the blue crab, *Callinectes sapidus*, and the green crab, *Carcinus maenas*. In crabs,

as in humans, the balance of salt and water is regulated by hormones that are released in response to changes in the external or internal environment. Mantel and her students have recently demonstrated that hormones increase the activity of certain enzymes in the gills of crabs, which are the primary organs responsible for controlling movement of salt in and out of the animal. These hormones, like many in higher animals, are produced and secreted by the crab's nervous system. They act on the tissues by way of an intermediary chemical or "secondary messenger." In future studies, Mantel will further examine the factors that control release of these neurohormones, and how they affect function of the gills.

Pterosaur skeletons, primitive trionychids (soft-shelled turtles), and a vast array of undescribed fossil insects are new additions to the Department of Vertebrate Paleontology's collection. Perhaps most exciting of all is a complete coelacanth, the first complete fossil coelacanth to be found in South America. This fossil fish is of great biogeographical interest, because it lived about 110 million years ago, probably in shallow seas, just as South America and Africa were beginning to drift apart.

Quantity and orientations of dislocations in olivine crystals may provide important clues as to how pallasite meteorites were formed. Pallasites are comprised of iron-nickel metal and the element olivine, most of which is in the form of large crystals. Sometimes the olivine crystals have dislocations — "mistakes" in crystal structure that are often caused by strain. Preliminary investigations by Hiroshi Mori (Mineral Sciences) showed most pallasitic olivines to have low strain rates, indicative of the kind of slow deformation that occurs in the earth's deep interior. This is in contrast to the rapid deformation that can result from the shock of meteoritic impact.

Research stations provide an opportunity for many scientists to conduct ongoing studies in the field. Unknown to many Museum visitors and Members, the Museum is affiliated with four research stations and/or programs outside of New York City. These include the Southwestern Research Station in Portal, Arizona; The St. Catherine's Island Research Program, off the coast of Georgia; Great Gull Island in Long Island Sound; and the Archibald Biological Station in south-central peninsular Florida. The Southwestern Research Station is open to scientists and other guests during the greater part of the year. For information, contact the Deputy Director of Research at the Museum. The Great Gull Island project, which primarily studies the reproductive success of common terns, uses the help of many volunteers throughout the year. To become involved in this project, call the Museum's Volunteer Office.

Slave-making ants are social parasites that invade the nests of other ants to steal their broods. Ants of the genus *Polyergus* use optical clues during slave raids, according to research by Howard Topoff and Linda Goodloe (Entomology). *Polyergus* scouts use the sun to navigate back to the target colony, as they lead other ants on a raid. The "rewards" of a good raid may be several thousand pupae of another ant species. These will be reared in the *Polyergus* nest. The captives will work side by side with their captors. In addition to snatching the pupae of other species, *Polyergus* ants conduct territorial raids on colonies of their own. This research is part of a long-term study of the evolution of slave-making behavior among ants.

Tongue-flicking behavior helps many different species of lizards and snakes to assess their environments. The reptile's tongue picks up chemicals from the ground or another surface, and delivers them through two slits in the roof of the mouth to the vomeronasal organs. What information does the animal gain by flicking its tongue? Some lizards and snakes seem to use this behavior to tell whether or not an animal of the same species has recently been in the area, and what sort of food is nearby. In some species, the male may use chemoreception to tell if a female is sexually receptive. Carol Simon (Herpetology) is working to better understand tongue-flicking behavior, and to note its variability among species.

Urophycis species that live together in the same waters, and are caught in the same nets, have different food preferences, according to research by Joseph W. Rachlin and Barbara E. Warkentine (Ichthyology). The food preferences of these fish, however, are not observable when food is abundant. They become clear only when food is scarce, pointing to the probability that these three closely-related species have evolved competition avoidance behavior.

Vintage films from the Museum's archives are currently being researched and catalogued as part of a two-year program. They include ethnographic, zoological, and archaeological topics. Some of the rarest footage dates back to 1908. Among the most important of the films are five from the Central Asiatic Expeditions (1921-1930) which include the fauna of Mongolia, the dinosaur egg discovery in the Gobi Desert, expedition transportation, details of Mongol life, and scenes of Beijing. Once the films are catalogued, they will be videotaped and made available to researchers. Ultimately, there will be about 300 titles in all.

Whiptail lizards are fascinating creatures. Several species are unisexual, having only female individuals. Research in biochemical genetics by Charles J. Cole (Herpetology) and Research Associate Herbert C. Dessauer (Louisiana State University Medical Center, New Orleans) demonstrates that a lineage of these remarkable animals normally constitutes a clone. All individuals within a lineage are genetically identical females that reproduce by means of unfertilized eggs.

Xian, China was just one of the fascinating faraway places visited by members of this year's Discovery Tour to Tibet. Other 1985 Discovery Tour highlights included excursions to Borneo, the South Pacific, the Black Sea, Rwanda, and the Galapagos Islands.

Young people benefited from numerous courses and special events created and implemented by the Department of Education. Nearly 21,000 youngsters in classes on schoolday mornings received instruction in natural science and anthropology topics. Handicapped groups were offered programs especially tailored to their needs. Well over 400 individual children participated in weekend *Workshops for Young People*. Topics ranged from craft activities like mask-making and origami to scientific classes on dinosaurs, endangered mammals, reptiles, and marine life.

Zoographical studies of marine mollusks of tropical waters resulted in the discovery of a living member of a genus of snail thought to have become extinct in the Caribbean some three million years ago. William K. Emerson (Invertebrates) has discovered that this species, *Pterorytis hamatus*, lives off the coast of Ecuador. *Pterorytis hamatus* survived in the eastern Pacific after being separated from other members of its genus by the rise of the Isthmus of Panama.

1986 promises to be another exciting year. Future issues of *Rotunda* will feature information on new temporary exhibitions about Gypsies, wolves, early modern humans, and other significant topics. Members will also continue to receive tidings of annual Membership traditions like Members-only tours, the Man and Nature lecture series, origami workshops, and family film programs. Stay tuned as well for news of exciting new Sky Shows of the Hayden Planetarium, Education Department courses and workshops, scientific research that probes into mountain, ocean, past and present — and much, much more. On behalf of the Museum, we in the Membership Office wish you a happy and hopeful new year.

Ruth Leibowitz, Editor

Copies of the 1985 Annual Report can be obtained by writing to the Office of Public Affairs, American Museum of Natural History, 79th Street at Central Park West, New York, N.Y. 10024

Natural Curiosity

Benita Epton of Manhattan asks: **What is the difference between a turtle and a tortoise?** Michael Klemens of the Department of Herpetology answers:

A tortoise is a turtle specialized for terrestrial life. Generally the term "tortoise" is used for turtles in the family Testudinidae, which are distinguished by elephantine, unwebbed feet, heavy scapula on the limbs, and a domed, thick shell. These are adaptations for the dry, terrestrial habitats of most tortoises. The heavy scales and the thick shell help to reduce evaporative water loss.

The eggs of tortoises have brittle shells, like birds' eggs, in contrast to the flexible, leathery eggs of most turtles. Again, this is an adaptation to reduce water loss.

Some species of tortoises live

*Although the British confuse the matter by calling many pond turtles "freshwater tortoises."

in tropical rain forests. Although they maintain many of their "tortoise characteristics," they tend to be more dorsally flattened and, not surprisingly, to have fewer water conservation

adaptations. The Burmese Brown Tortoise and the Galapagos Tortoise are two such creatures.

Do you have a question

about the natural world? Mail it to *Natural Curiosity*, Membership Office, American Museum of Natural History, 79th Street at Central Park West, N.Y., N.Y. 10024.



Geochelone chilensis. A small Argentinian tortoise.

Who Gives a Toot? A Children's Concert

Sunday, December 15
3:00 p.m.
Kaufmann Theater

In a music program designed to appeal to young people, the Bloomingdale Chamber Orchestra will perform works by Georges Bizet, Edvard Grieg, and others. In a special feature, Joe Szerly will appear as Tubby the Tuba.

The Bloomingdale Chamber Orchestra is conducted by Martin Rutishauser. Seating is on a first-come, first-served basis. For additional information, please call the Department of Education at (212) 873-1300, ext. 559.

Edible FACES

The December issue of *FACES* magazine features the lore of gift giving throughout the world. Among the articles is one about marriage gifts in Papua, New Guinea, and another about how people give gifts to their gods on an island in the Mediterranean Sea. This issue of *FACES* is also filled with holiday activities like the one below. To make an edible face, just follow the recipe. To order a gift subscription to *FACES* Magazine, just use the coupon below.

For the cookie dough, you need:

3 sticks (1½ cups) butter or margarine
2¼ cups light brown sugar
2 eggs
4 cups sifted flour

To make the cookie dough:

In the large bowl of an electric mixer, beat the butter until it is creamy. Beat in the light brown sugar a few tablespoons at a time, then beat the mixture until it is light and fluffy. Beat in the eggs.

Sift the flour with the salt, cinnamon, nutmeg, and cloves. Gradually stir it into the sugar mixture, beating well after each addition and scraping the sides of the bowl. When the dough is soft, smooth, and well mixed, divide it into three parts. Keep one part plain. Return the second part to the mixing bowl, beat in the cocoa, and remove the dough. Put the third part in the mixing bowl, and beat in red food coloring one drop at a time until the dough is the color you want. Make balls of the colored dough between the palms of your hands, and wrap each one separately in plastic wrap. Refrigerate the dough overnight.

To shape the cookie dough:

Cut each ball of dough in half. Roll out each half to a thickness of ¼ inch on a lightly floured board. Cut out circles of dough with a 3-inch round cookie cutter (or a glass or can) dipped in flour. With a spatula, carefully transfer the round cutouts to well-greased baking sheets, placing them 2 inches apart. Gather up the extra scraps of dough and save them for decorations. Continue to make round cutouts from the rest of the dough, saving the scraps from each rolling.

For decorations, you need:

currants (eyes)
cinnamon red hots (eyes, noses)
colored sugar (freckles, hat decorations)
scraps of dough (mustaches and beards, ears, noses, mouths, hair, hats)
face paints (recipe follows) and fine paintbrushes or tubes of decorative icing, sold in grocery stores

Funny Faces

The gifts you make are the gifts your friends and family appreciate the most. If they are spicy cookies disguised as funny faces, you can be sure they will be a big success. Start with an easy cookie dough that is colored light brown, dark brown, and red, and create features and accessories from candies, currants, and rolls of dough.

To decorate the faces:

You can make amazing faces with the scraps of dough. To make a handlebar mustache, roll a small piece of dough between your hands until it is as thin as a pencil, then loop it on a face in the shape you want. Use thin, short loops for curly hair and larger loops for hat brims. Roll out the dough and cut out beards and hats. You can mold the dough easily into baseball caps (decorate the face as though it were a side profile) or Indian headbands with feathers. If you need ideas, look through earlier issues of *FACES*, especially the hats issue (June 1985). Press all the pieces of dough, currants, and candies into the cutouts before baking.

To bake the funny faces:

Preheat the oven to 350°F. Bake the cookies, one sheet at a time, for about 15 minutes, or until the edges of the light-colored faces turn golden. Use a spatula to transfer them to wire racks. At this point, you may add face paint to redden cheeks or to decorate hats with stripes and dots of color. When the cookies are cool, store them in airtight tins.

To make face paints:

In a small bowl, beat 2 egg yolks well, and divide them evenly among 3 cups. Color each cup with 2 or 3 drops of red, green, or blue food coloring. Paint the colors on the cookies with a paintbrush after they are baked, and return them to the hot oven for 2 minutes to set.

Reprinted with permission from the December issue of *FACES*.

The Gift of Faces

☐ YES! I think Faces would be a wonderful gift for the following child:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

As a special Members' discount, gift subscriptions to *Faces* are \$13.95 (regular price \$16.50).

Your Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Please mail this coupon along with your check or money order to: *Faces*, 20 Grove Street, Peterborough, New Hampshire 03458.

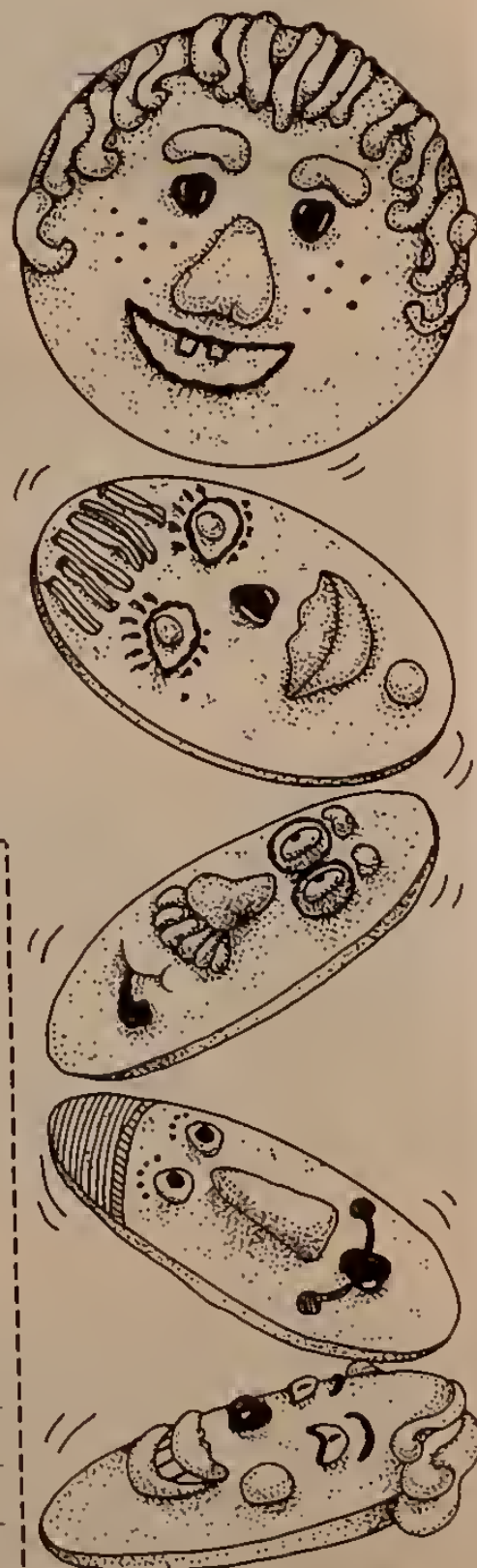


Illustration by Emily Hall

Discovery Tours: Excursions In Search of Halley's Comet

Two Discovery Tours in April of 1986 will enable participants to enjoy a once-in-a-lifetime phenomenon — Halley's Comet — in the company of Museum experts.

During the *Australia: Halley's Comet and Wildlife Adventure* participants will view Halley's Comet at the peak of its visibility at the Stromlo Observatory, and on top of Mt. Crackenback. Other highlights of this tour include superb wildlife sanctuaries with kangaroos, koala bears, penguins, and more. The tour ends with two full days in deluxe accommodations at the Great Barrier Reef. April 5 through April 19.

Also at the peak of the comet's visibility, participants in

Trinidad and Tobago: *Halley's Comet and Wildlife Adventure* will spend three days on the beautiful island of Tobago. Tobago offers superb coral reefs and excellent bird watching. In Trinidad, participants will visit the Asa Wright Nature Center, nestled in a jungle teeming with exotic flora and fauna. April 11 through April 20.

For additional information about these and other Discovery Tours, write: Discovery Tours, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024. Interested Rotunda readers can also call Discovery Tours at (212) 873-1440 or 799-7157.

Gift Memberships

As a special holiday benefit, Members may give gift Memberships at 30% off our regular Membership rates. Only \$28 for a Participating Membership and just \$14 for an Associate one.

☐ YES! A gift of Membership is a wonderful idea. Please enroll the following as:

_____ a \$14 Associate Member _____ a \$28 Participating Member

The recipient of this gift will receive notice of his or her new Membership in a beautiful holiday card.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

HNRT 2

This Membership is a gift from:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Membership category: _____

_____ Enclosed is my check payable to the American Museum of Natural History.

_____ Please bill me after the holidays.

Save time — order by calling our toll free number, (800) 247-5470.

When using this coupon, please mail it to: Membership Secretary, American Museum of Natural History, 79th Street at Central Park West, New York, NY 10024.

Seventh Annual Kwanzaa Experience

Saturday, December 28, Sunday, December 29, and Monday, December 30. See listing below for times, events and places. Free and open to all Museum visitors. Some programs are ticketed.

Kwanzaa, meaning "the first fruits of harvest" in Swahili, is a unique seven-day holiday that pays tribute to the cultural roots of black Americans. Celebrated from December 26th through January 1st, Kwanzaa embodies seven principles, or "guides for daily living." These principles are unity, self-determination, collective work and responsibility, cooperative economics, purpose, creativity, and laith.

For the second year in a row, the Museum, in conjunction with the New York Urban Coalition, will contribute to the celebration of this very modern (only eighteen years old) holiday, with a potpourri of lectures, workshops, performances, and demonstrations in many areas of the Museum. The following is a complete listing of activities.

Seed Day. Saturday, December 28

The Brewery Puppet Theater. Through puppets, young and old alike will learn about the seven principles of Kwanzaa, and how through self-determination, black culture has survived in the Americas. The Brewery puppet troupe features the antics of four musical, comical crow puppets called The Crowations. The troupe has performed in many schools and on T.V., and can often be seen drawing fascinated onlookers in Central Park. 2:00 and 4:00 p.m. in the Kaufmann Theater.*

Spirit Ensemble. The self-determination which has allowed black culture to survive and evolve in the Americas is reflected in the black music of the Caribbean and Brazil. This performance will illustrate this concept. 1:00 and 3:00 p.m. in the Linder Theater.*

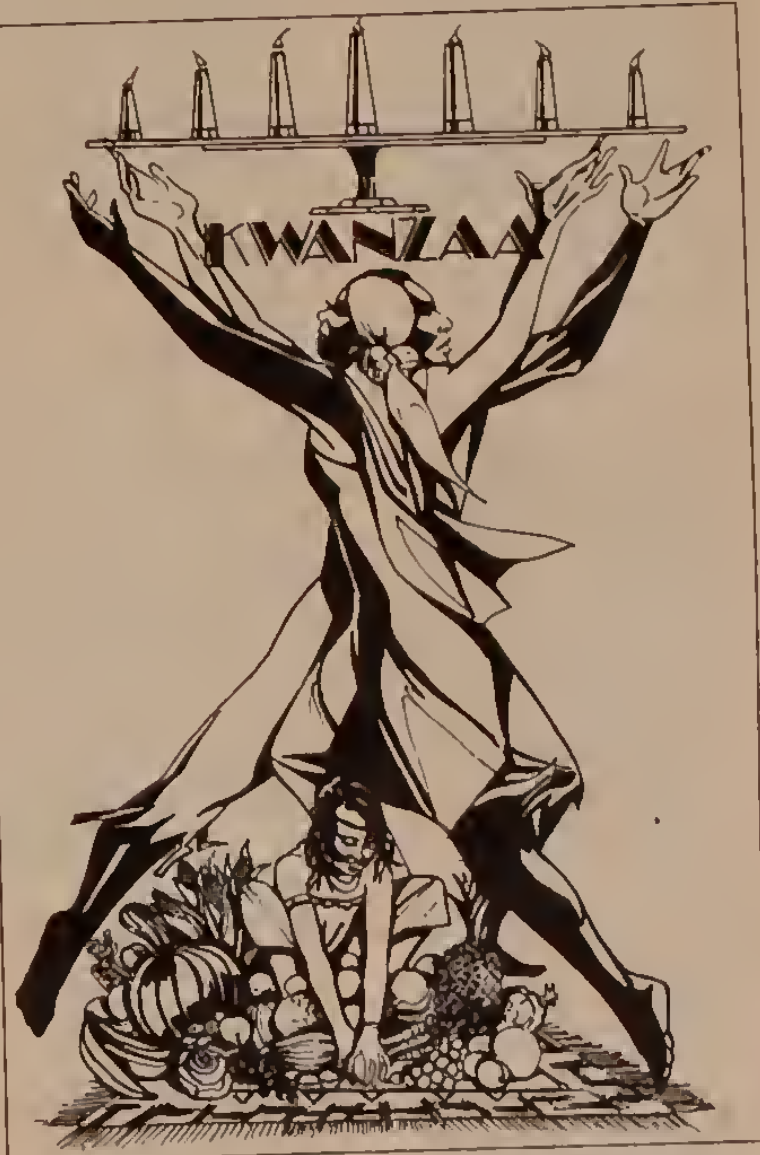
People Center Activities (Second Floor)

Terrace 1. Karen Hamilton sings songs depicting black struggles, and demonstrates games that were played during slavery. 1:00, 2:00, 3:00 and 4:00 p.m.

Terrace 2. Jumas Santos plays African instruments including drums, the kora-a, and the Brazilian Berimbau. *Lore of the Londs.* Cheryl Byron and Friends offer musical presentations of Caribbean, Latin American, African, and African American folktales. 1:30, 2:30, and 3:30 p.m. in the People Center Theater.

Tie Dye Workshop. With Carmen Lowe, in the Calder Lab. 1:00, 1:45, 2:30, and 3:15 p.m. Tickets can be obtained in the Calder Lab beginning at 12:00 p.m.

African Culture Through Dance. A participatory workshop with Pat Hall and a drummer. 1:15, 2:15, and 3:15 p.m. in the Blum Theater. To the



rhythm of African instruments, participants learn dance movements from Africa, Brazil and Haiti, and explore their historical and emotional contexts.*

Elders Day. Sunday, December 29

Drum and Spirit of African Society. Sabar Ak Ru Afriq is a company of performing artists who will combine their talents to celebrate the rhythm of life, the ancestral presence, and the power of cooperation. The performance will include music, dance, and dramatization. 2:00 and 4:00 p.m. in the Kaufmann Theater.*

Montego Joe and his Jazz Ensemble. Various jazz rhythms will illustrate how the self-determination of black people is reflected in this genre of music. 1:30 and 3:30 p.m. in the Linder Theater.*

People Center Activities

Sonido de la Plena. Plena is a genre of music of African origin which developed in Ponce, Puerto Rico. It provided people with an avenue for social and political commentary. The music and lyrics are improvised, and the themes borrowed from daily events affecting people's lives. 1:30, 2:30 and 3:30 p.m. in the People Center Theater.

Terrace 1: Afro-Caribbean Healing Practices with Akeea. **Terrace 2:** Foods of Celebration in the Kwanzaa Tradition with John Mason.

Adire. There is a popular dyed cloth called "Adire Eleko" made by the women traders of Ghana and Nigeria. In this participatory workshop Car-

men Lowe will teach participants how to produce a dyed cloth by using the resist dye method. 1:00, 2:00, and 3:00 p.m. in the Calder Lab.

African Culture Through Dance. 1:15, 2:15, and 3:15 p.m. in the Blum Theater.*

Regeneration Day. Monday, December 30

At 7:30 p.m. in the Main Auditorium, there will be a dramatic portrayal of the handing down of traditional values and leadership from the elders to the youth of the community. This regeneration ceremony will feature The Forces of Nature Dancers and Drummers, the Chuck Davis Dancers, and Brothers Unique.

Free tickets for the Regeneration Ceremony can be obtained by mailing a self-addressed stamped envelope to Community Programs, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024. Ticket requests must be received by December 20, 1985.

All of the Kwanzaa programs described above are free and open to all Museum visitors. For additional information about any of these Kwanzaa festivities, please call the Department of Education at (212) 873-1300, ext. 514.

* For asterisked programs, tickets are necessary. Free tickets are available at the Kaufmann Theater ticket booth, beginning at 12:00 p.m. on the day of the program. Programs without asterisks are not ticketed. Seating for all programs is on a first-come, first-served basis.

Courses for Stargazers

Special and New

Mysteries of Halley's Comet. Halley's comet will soon visit our skies after a lapse of 76 years. What is a comet? Why does it exist? What's so special about Halley's comet and why do we see it so seldom? The course will answer these and many more questions about Halley's comet, and comets in general. Six Monday evenings beginning January 6, 6:30 to 8:40 p.m. \$60 (\$53 for Members).

Planetary Weather and Climate. Martian dust storms, the super-rotation of the Venus cloud deck, and the swirl of Jupiter's Great Red Spot are natural laboratories for testing new theories of atmospheric circulation. This new intermediate-level course will review the present understanding of the weather, atmospheric dynamics, and climate variability of planetary atmospheres. Discussions will be richly illustrated with spacecraft images and derived wind-temperature maps of Earth, Mars, Jupiter, and other planets. A knowledge of high school algebra is assumed. Eight Thursday evenings beginning January 9, 6:30 to 8:40 p.m. \$70 (\$63 for Members).

Computational Astronomy with a Microcomputer. This course is designed for those with a microcomputer who want to learn to use it for astronomical calculations. Knowledge of high school algebra, plane geometry, and trigonometry is assumed. Knowledge of the BASIC programming language will be helpful. Eight Tuesday evenings beginning January 7, 6:30 to 8:40 p.m. \$70 (\$63 for Members).

Tried and True

Astronomy, Basic Courses

Introduction to Astronomy. A first course in astronomy designed to introduce the many interesting things in the universe to people with no math or physics background. Topics include

Earth as a planet, the moon, the solar system and sun, black holes in space, and more. Eight Wednesday evenings beginning January 8, 6:30 to 8:40 p.m. \$70 (\$63 for Members).

Stars, Constellations and Legends. An introduction to the lore of the sky. Using the Zeiss Planetarium Projector in the Sky Theater, this course identifies the prominent stars, constellations, and other sky objects of both northern and southern hemispheres. Many cultures' myths and legends that relate to the sky are told and illustrated. Five Thursday evenings beginning January 9, 6:30 to 8:10 p.m. \$50 (\$45 for Members).

Life Beyond the Earth — The Search for Life in the Cosmos. This course presents the reasons why a large number of scientists believe that there is intelligent life elsewhere in the universe. Some of the topics to be discussed are stellar evolution, theories of planet formation and development, and current investigations. Eight Wednesday evenings beginning January 8, 6:30 to 8:40 p.m. \$70 (\$63 for Members).

Astronomy, Intermediate Courses

Planetary Weather and Climate and Computational Astronomy with a Microcomputer. See "Special and New," above.

Aviation

Ground School for Private and Commercial Pilots. This course is a preparation for the FAA written examination for a private or commercial license. It will also help as a refresher for Biennial Flight Reviews, and survey some of the practicalities of flight training and aircraft ownership. Fourteen sessions on Tuesday and Thursday evenings, beginning January 7, 6:30 to 8:40 p.m. \$175 (\$157.50 for Members).

Ground School for Instrument Pilots. Intended for those planning for an instrument license. The course also provides updated information for instrument competency checks, and

familiarizes VFR pilots with instrument techniques. Fourteen sessions on Tuesday and Thursday evenings beginning January 14, 6:30 to 8:40 p.m. \$175 (\$157.50 for Members).

Navigation, Basic Courses

Electronic Navigation and Communications. This is a basic course for those interested in learning about marine electronic navigation and communications. The course examines the types of electronic equipment used in navigation and communication, including VHF-FM, single-sideband transceivers, Loran, echo sounders, radar, and more. Eight Monday evenings beginning January 6, 6:30 to 8:40 p.m. \$70 (\$63 for Members).

Navigation in Coastal Waters. An introduction to piloting and dead reckoning for present and prospective owners of small boats. The course provides practical chart work and includes such topics as the compass, bearings, fixes, buoys and lighthouses, the running fix, and more. Section I: Eight Monday evenings beginning January 6, 6:30 to 9:00 p.m.; Section II: Eight Wednesday evenings beginning January 8, 6:30 to 9:00 p.m. \$95 (\$85.50 for Members).

Navigation, Intermediate Courses

Piloting for Sailboat Operators. This course draws upon and reviews material covered in *Navigation in Coastal Waters*. It is geared to the sailboat navigator with some experience who wishes more information on position determination techniques and methods. Prerequisite: *Navigation in Coastal Waters* or permission of the instructor. Tables from the *American Practical Navigator*, Volume II, will be employed in problem solving. Eight Tuesday evenings beginning January 7, 6:30 to 9:00 p.m. \$95 (\$85.50 for Members).

Introduction to Celestial Navigation. For those who have completed *Navigation in Coastal Waters*, or who have equivalent

Courses for Stargazers

I would like to register for the following Planetarium Course(s):

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Telephone: _____

Membership category (if applicable): _____

Amount enclosed for courses: \$ _____

Please write your check or money order to the American Museum-Hayden Planetarium and mail to: Course Registration, American Museum-Hayden Planetarium, 81st Street at Central Park West, New York, New York 10024.

lent piloting experience. This course covers the theory and practice of celestial navigation, the sextant and its use, and the complete solution for a line of position. Students are required to purchase a copy of *Sight Reduction Tables for Marine Navigation*, Volume 3 (Pub. No. 229). Eight Thursday evenings beginning January 9, 6:30 to 9:00 p.m. \$95 (\$85.50 for Members).

For Young People

Introduction to the Sky. This course, which meets in the Sky Theater, discusses and illustrates the various stars and constellations, some of their lore, and some of the many interesting objects found in the sky. The course assumes no previous knowledge of astronomy. Ten Saturday afternoons beginning January 11, 12:00 to 12:50 p.m. \$25 (\$22.50 for Members).

The Solar System. This course includes a brief overview of historical astronomy and considers the many theories concerning the origin of the solar system, as well as the "geology" of the planets and their satellites, including Earth and the

moon. This year a special emphasis will be placed on Halley's Comet. Ten Saturday mornings beginning January 11, 10:30 a.m. to 11:20 a.m. \$25 (\$22.50 for Members).

Stars, Black Holes, and Galaxies. Topics to be discussed include the evolution of the cosmos, star types, life cycles of stars, nebulae, black holes, galaxies, and quasars. Emphasis will be placed on the methods and instruments used by astronomers to collect their information. Ten Saturday mornings beginning January 11, 9:30 a.m. to 10:20 a.m. \$25 (\$22.50 for Members).

Preregistration is strongly urged, since class sizes are limited. Preregistered students may pick up their course cards at the Planetarium Shop on the day of their first session. Students may enroll up to the second night of the course.

Please note that Membership discounts are for Participating, Donor, and Contributing Members only. All tuitions are per person. Only one discount is allowed per person per term.

For additional information, please call (212) 873-1300, ext. 206.

Happenings at the Hayden

Wonderful Sky.

The Muppets are back to take preschoolers on a journey to explore rainbows, sunsets, and distant stars. Big Bird, Cookie Monster, Grover, and other favorite Sesame Street Muppet characters encourage the children to participate in sessions of dialogue and song. Advance registration is strongly recommended. To register, please call (212) 873-5714.

December, January and February Schedule

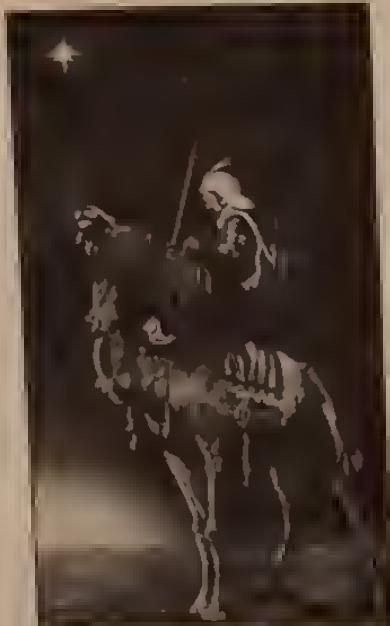
Sat., December 7 10:00 a.m.
Sat., January 4 10:00 a.m.
Sat., February 1 10:00 a.m.

Sky Shows

The Star of Christmas. What led the wise men to Bethlehem? Was it a special star? A comet? A meteor? Or something else? Travel back nearly 2,000 years in time to explore the skies of the first Christmas in the Hayden Planetarium's holiday show.

Sky Show times are: Mon.-Fri. 1:30 and 3:30 p.m.; Saturday 11:00 a.m., 1:00, 2:00, 3:00, 4:00 and 5:00 p.m.; Sunday 1:00, 2:00, 3:00, 4:00 and 5:00 p.m. There will be additional showings between December 25 and 30.

Sky Show admission for Participating, Donor, and Contributing Members is \$2.75 for adults and \$1.50 for children.



One of the Wise Men.

dren, and includes two floors of exhibitions. For non-member prices and to confirm Sky Show times, please call (212) 873-8828.

Laser Shows

Laser visuals and rock music combine to create a unique and dazzling experience of sight and sound on Friday and Saturday evenings. An old-time favorite, Laser Zeppelin, has returned to the Planetarium.

7:00 p.m.: **Heavy Laser.** Features a combination show of The Police, Van Halen, The Who, and Rush.

8:30 p.m.: **Laser Floyd.** With the music of Pink Floyd.

10:30 p.m.: **Laser Zeppelin.**

With the music of Led Zeppelin.

Laser show admission for Participating, Donor and Contributing Members is \$4.00. Tickets can be purchased at the Planetarium box office on the night of the show. For additional information, please call (212) 724-8700.

School Programs

The Planetarium offers many programs for young children. For school information call (212) 873-5714.

It is always a good idea to call before coming, since prices and show times are subject to change without notice. For general information call (212) 873-8828.

Middle Eastern Dance

Sunday, January 5
2:00 p.m. and 4:00 p.m.
Kaufmann Theater
Free

Middle eastern dancing, also sometimes called "belly dancing," originated in pre-biblical times, possibly as part of religious rites that venerated moth-

erhood and prepared women for childbirth. The Moroccan Guedras, the Turkish dervishes, and the Haggala cane dances of Egypt are examples of such

dance forms.

Next month, these and other "belly dances" will be performed by Carolina Varga Dinicu, known as Morocco, and

the Casbah Dance Experience. Morocco's expertise as a performer, teacher, and lecturer on Middle Eastern dance has earned her international ac-

claim.

Seating is on a first-come, first-served basis. For additional information, please call (212) 873-1300, ext. 559.

Museum Notes



AP/WIDE

This gorilla is part of a new slide set of 20 favorite museum views. This set of color slides is available at the First floor Information Desk and in the Museum Library's Photographic Collection.

Special Exhibitions

Origami Holiday Tree. On display through January 5 in the Roosevelt Rotunda.

Masterpieces of the American West: An Artistic Look at 150 years of the Wild West. In Gallery 3 through February 16. Page one contains a description of the exhibition, and page 5 features three exhibition-related programs.

Tiger Tiger Burning Bright. Through January 12 in the Naturemax Gallery. This exhibition includes 64 exquisite color photographs of Indian wildlife.

Vijayanagara: Where Kings and Gods Meet. Through January 26 in the Akeley Gallery. The temples, palaces, sumptuous pavilions, and other aspects of Vijayanagara, the greatest of all ruined cities in southern India, are featured in this exhibition, which includes photographs, drawings, and examples of Indian ceramics.

Jewels of India. A succinct view of the rich natural history and cultural heritage of India, as reflected in the Library's rare book, photographic and general collections. The images and illustrations include insects with a vibrant, gem-like quality, a delicate Asian elephant by Currier, original botanical drawings and vintage photographs of India. Library En-

trance (closed weekends).

From the Museum's Attic. Through January 20. The Museum Library's memorabilia collection is like grandmother's attic — full of Museum mementos such as utensils and keepsakes from expeditions, family portraits and snapshots, diaries, and letters, paintings and lumiture. This exhibit displays such items from Teddy Roosevelt, Roy Chapman Andrews, Lincoln Ellsworth, and American Museum founder Albert S. Bickmore. In the Library Gallery on the fourth floor

Programs and Tours

Museum Highlights Tours offer fascinating glimpses into the

history and exhibits of the Museum's most popular halls. They leave regularly from the first-floor Information Desk. If you wish to join a free tour, please ask at an Information Desk for specific tour times or call (212) 873-1300, ext. 538.

Discovery Tours are exciting and unusual journeys to exotic lands in company with Museum staff members. For additional information, write to Discovery Tours at the Museum or call (212) 873-1440.

The Natural Science Center introduces young people to the wildlife and rocks of New York City. Some exhibits include live animals. The Center is open Tuesday through Friday, 2:00 to 4:30 p.m., Saturday and Sunday, 1:00 to 4:30 p.m. It is closed on Mondays and holidays.

In the **Discovery Room** children can touch natural history specimens in imaginative "discovery boxes." Starting at 11:45 a.m., free tickets are distributed at the first-floor Information Desk. Open weekends from 12:00 to 4:30 p.m. Recommended for ages five to ten.

The Leonhardt People Center features ethnic programs of dance, music, films, lectures and workshops. Weekends from 1:00 to 4:30 p.m. This month the People Center continues to celebrate the cultural richness of India. Please turn to the calendar on page 12 for a listing of times and activities.

Naturemax Information

On New York's largest movie screen — four stories tall and sixty feet wide — the drama of space unfolds, as Museum visitors join astronauts aboard the space shuttle in Naturemax's newest film *The Dream is Alive*.

In addition, Friday and Saturday double features include all-time Naturemax favorites *To Fly!* and *Living Planet*.

The box office is located in the 77th Street lobby near the Great Canoe. Call (212) 496-0900 for the current schedule and other information. Members receive a 50% discount at all times, including the Friday and Saturday evening double features.

Parking

Our lot is operated on a first-come, first-served basis. It is

open from 9:30 a.m. to 9:30 p.m., Monday through Thursday, and from 9:30 a.m. to 12:30 a.m., Friday through Sunday. There are only 100 spaces available. The entrance is on 81st Street between Central Park West and Columbus Avenue. Rates are \$7.00 for cars and \$8.00 for buses. Parking will be free after 5:30 p.m. for programs and courses on Monday, Tuesday, and Thursday evenings.

For a list of other parking lots in the area, please call the Membership Office at (212) 873-1327.

Museum Information

Museum Hours. Monday, Tuesday, Thursday, Sunday: 10:00 a.m. to 5:45 p.m. Wednesday, Friday, and Saturday: 10:00 a.m. to 9:00 p.m.

Food Express Hours. Daily from 11:00 a.m. to 4:45 p.m. The Food Express has a non-smoking section.

American Museum Restaurant. Lunch: Monday-Friday, 11:00 a.m. to 4:00 p.m. Tea: Daily, 4:00 to 5:00 p.m. Dinner: Wednesday, Friday and Saturday, 5:00 to 7:30 p.m. Brunch: Weekends, 11:00 a.m. to 4:00 p.m.

Members receive a 10% discount. The Restaurant is located in the basement near the subway entrance.

Dinner reservations are recommended. Call (212) 874-3436 for reservations.

Lion's Lair. Enjoy refreshments with the animals in one of the halls. Wednesdays: 3:30-7:00 p.m. Saturdays, Sundays and most holidays: noon-5:30 p.m.

Coat Checking. Daily from 10:00 a.m. to 5:30 p.m. in the basement. Rate is \$.50 per item.

Southwestern Research Station. Members have visiting privileges. For a visit of less than one week, write ahead for details: Southwestern Research Station, Portal, Arizona, 85632, or call (602) 558-2396. For a visit of more than one week, apply to the Deputy Director of Research, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, or call (212) 873-1300. The January issue of *Rotunda* will include the first in a series of feature articles about this unique outpost.

Sat

Fri

Thu

Wed

Tue

Mon

Sun

7 Folding Flyers. Members' Eighth Annual Origami Workshop. (Various times throughout the day) See page 2. and coupon on page 3.
1:00 to 4:30 p.m. Winter Celebration. Same as December 8.
Leonhardt People Center. Free.
11:00 a.m. New York Map Society. Room 129. Free.

5 7:00 p.m. Systematics Discussion Group. Room 419. Free.

4 7:45 p.m. Amateur Astronomers Association. Kaufmann Theater. Free.

3

1 1:00 to 4:30 p.m. Celebrating India. The Lion and the Brahmin — an animal tale by the East-West Fusion Theater. Performing Arts (masks, puppets, and gestures) with Tevnot Fairservis Purchot. The Indian Family, a slide talk with Anne James. Leonhardt People Center. Free.

8 1:00 to 4:30 p.m. Winter Celebrations. Winter Dances of Native Americans, with the Thunderbird Dance Company. Dramatizations of coyote winter stories, with Marty Kreipe and Nanette Roubideaux. Winter sharing with clay, with Diosa Summers. Leonhardt People Center. Free.
1:30 p.m. New York Shell Club. Room 419. Free

15 1:00 p.m. to 4:30 p.m. Winter Celebrations. Winter Solstice in Poland, with the Polish Theater Institute. Christmas folklore in the Tatra Mountains with Dr. T.V. Gromada. Christmas Folk art, with Dolores Olson. Leonhardt People Center. Free.
2:00 p.m. New York Paleontological Society. Room 426. Free.
3:00 p.m. Who Gives A Tool? Kaufmann Theater. Free. Page 8.

22 The Leonhardt People Center is closed.

23 Members of the Caribbean Christmas Cruise on the Sea Cloud arrive in the Caribbean. For information on future trips, call (212) 873-1440 or write Discovery Tours at the Museum address.
Moon is at apogee at 2:00 a.m.

29 The Museum celebrates Kwanzaa. See article on page 9 for details of programs throughout the Museum.

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31



Nina Polan and Pablo Zinger of the Polish Theater Institute, to perform in the People Center this month.

11 7:00 and 9:00 p.m. The Four Seasons. Members' Program. Use the coupon on page 3 to order tickets to this baroque concert at the Hayden Planetarium.
7:00 p.m. New York Mineral Club. Leonhardt People Center. Free

New Moon at 7:54 p.m.

18 7:00 p.m. Ladakh: Modernization Without Destruction. Kaufmann Theater. Free. Page 4.
7:30 p.m. Lapidary and Gem Society. People Center. Free.
8:00 p.m. Met Grotto; National Speleological Society. Room 129. Free.

17 7:00 p.m. Cowboys and Indians. Members Program. Free for Members, \$5.00 for non-members. Page 5.
8:00 p.m. New York Entomological Society. Room 323. Free.



Black cowboys. Page 5.

26 11:00 a.m., 1:00 p.m., and 3:00 p.m. Nanook of the North. Members' Program. Free and open only to Members. Kaufmann Theater. Page 2.

25 Christmas Day. Museum closed.

24

28 The Museum celebrates Kwanzaa. See article on page 9 for details of programs throughout the Museum.

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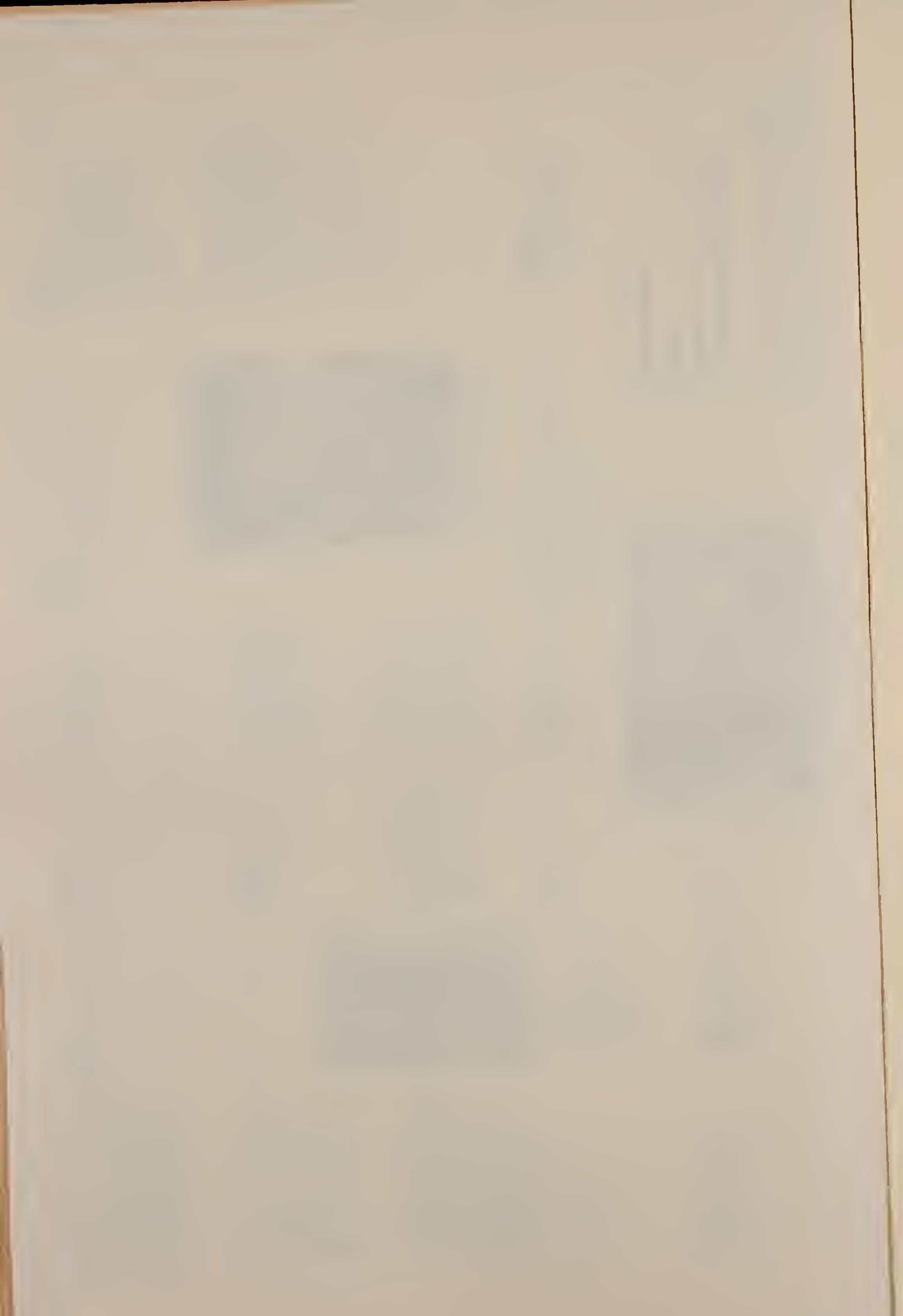
Full Moon at 2:30 a.m.



Images and Stereotypes of the West. Page 5.

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