

Q7
455

H

In the Field

The Bulletin of the Field Museum of Natural History

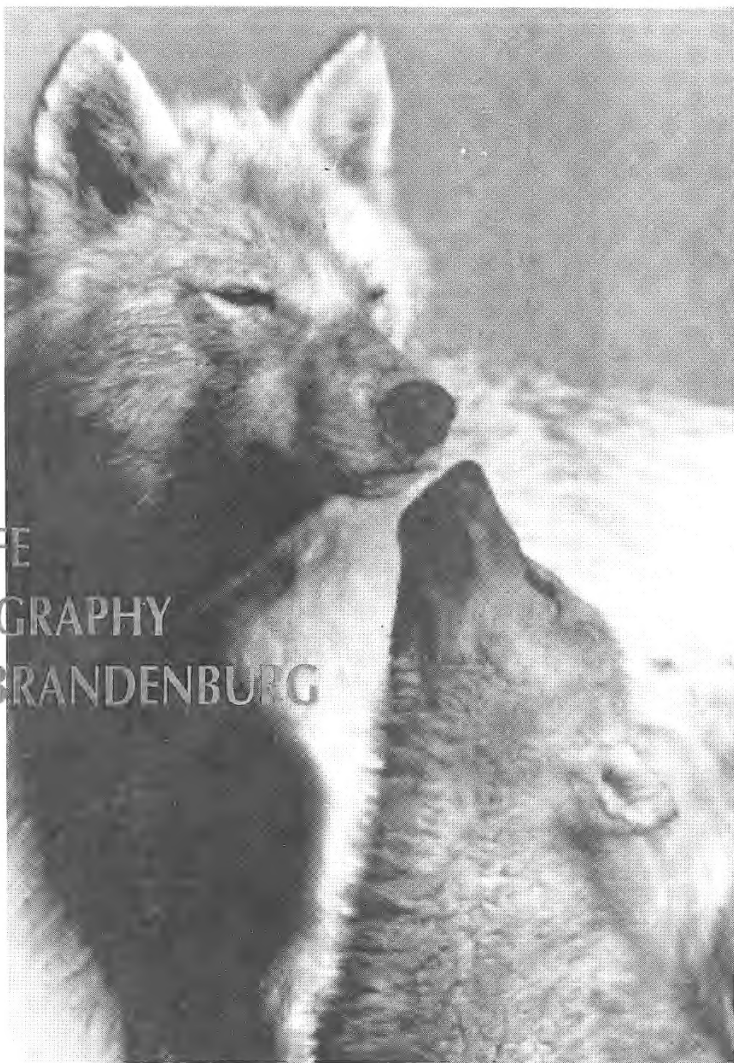
March/April 1991

FOSSIL
WHALES IN
THE ANDES

MAORI &
MUSEUMS

NEW THIS ISSUE
COMPLETE
MUSEUM
EDUCATION
PROGRAMS

WILDLIFE
PHOTOGRAPHY
BY JIM BRANDENBURG



In the Field

The Bulletin of the Field Museum of Natural History

March/April 1991

3

Jonathan Haas, vice president for collections and research, sets a new agenda for Museum science.

5

Calendar: a new traveling exhibit; a lecture on the fate of the dinosaurs; and more.

7

New with this issue: The complete schedule of Museum courses and field trips.

11

Field Museum joins with TV journalist Bill Kurtis to help interest young people in science.

WHAT CAN THE MAORI TEACH THE WORLD?

The curator of the Maori meeting house at Field Museum reflects on the ways in which museums and the peoples whose cultures are represented in their collections can make cultural artifacts tell the stories their creators intended.

Essay, Page 14



FOSSIL WHALES IN THE ANDES

ADVENTURES IN CHILEAN PATAGONIA

By John Flynn
Associate Curator of Geology

WHALE FOSSILS FOUND AT 6,000 FEET
IN THE ANDES MOUNTAINS

With that discovery in 1986, I began my research in South America, in a remote region of southern Chile where the mountains and the bones of whales have told us much about the changing face of the earth and the evolution of life.



Chile in the summer: John Flynn chips away at the Andes. Right, a 1902 drawing of *Pecten proximus*, an invertebrate of a kind found in the mile-high fossil site.

The adventure began seven years ago, when Pablo Raty, a young Chilean veterinarian visiting the United States, showed my colleagues and me some pictures of fossils his uncle Carlos de Smet had found near the town of Chile Chico in southern Chile. The photographs were startling — they clearly were whale vertebrae, but they had been found in rocks lying at 6,000 feet above sea level! Never before had fossil mammals been found in this part of Chile, which suggested that we might have an opportunity to combine the two most exciting elements of paleontological work: collecting important fossils from an area that had never been visited by professional paleontologists; and solving a major scientific problem — the geological history of the southern Andes.

The facts:

- Whales live in the oceans, therefore we know that this currently mountainous area was once covered by a seaway.

- The whales died and their bones became entombed as fossils in sediments forming at the bottom of the sea; sometime later, the sea began to withdraw from the area and the Andes Mountains began to rise; this uplift of the Andes eventually elevated the rocks containing the whale fossils to their current position 6,000 feet above sea level.

- If we could determine the age of the whale bones, we could determine when the Andes Mountains began to form in this area, and how fast they rose to their current elevations.

We quickly decided to mount an expedition, forming a research group of colleagues from the American Museum of Natural History, the University of California at Santa Barbara, the University of Chile, and the National Museum of Chile.

Our first visit to the Andes was typical of many paleontological expeditions — periods of boredom punctuated by heart-quickenings thrills. Even though we had done extensive groundwork (attaining approval from the Chilean government to collect and study fossils, buying maps, reading previous scientific studies of the area) prior to leaving the U.S., much of our time in Chile was spent on travel, planning, and logistics. The trip from the U.S. to Chile Chico took 24 straight hours, and involved flights on three progressively smaller airplanes. By the time we boarded a twin-propeller plane for the last 100 miles to Chile Chico, on the south side of Lago General Carrera, the second-largest lake in South America, our six-person expedition

with all its gear began to outgrow the capacity of our transportation. The stall alarm sounded during the entire take-off. But our seasoned pilot had weathered more difficult conditions in the harsh environment of Patagonia, and he clearly was confident we would become airborne.

We did manage to climb above the trees, barely. As we were buffeted by the ferocious Patagonian winds, all the paleontologists became oblivious to the flight — we gazed out the windows at the spectacular exposures of "badlands" below, imagining the fossil riches that might be entombed within the rocks. (On an unpleasant note, several months later a less experienced pilot flying the same plane in the unpredictable and violent Patagonian winds crashed, killing all on board.)

We were met at the airport by our host, Carlos de Smet, the mayor of Chile Chico, an avid amateur naturalist and founder of a municipal museum. Carlos had discovered the whale fossils on one of his innumerable camping/collecting trips in the nearby mountains. The next

several days were spent in the busy tedium of renting vehicles, unpacking gear, buying food, arranging horses, and visiting local dignitaries. When our horse caravan finally headed toward the whale site, the anticipation of discovery began to build. By late afternoon we arrived at a campsite by a small lake. We pitched mountain tents (one collapsed in the heavy winds), filtered drinking water, erected a wind-screen to shelter a communal gathering spot/dining area, and began a small campfire for cooking, fueled by small pieces of brush because no trees grew in this area.

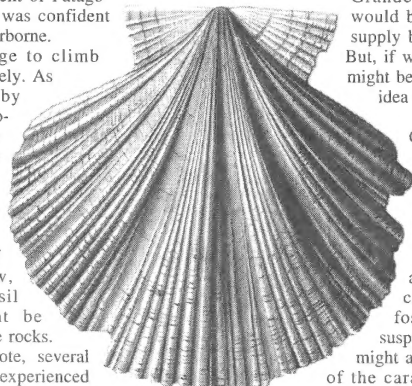
The next day we hiked to the fossil-whale site, at 6,000 feet elevation. Although we found a few more pieces of the whale skeleton, our dreams of a whale "graveyard" were unrealized. However, we were able to collect fossils of other marine animals (snails, clams, crabs, oysters, scallops, etc.), and lava flows (basalts) bracketing the fossil site above and below. We later used radioactive dating techniques to determine the age of the lava flows, making it possible to estimate the age of the whale site lying between them.

As in any good expedition we had a fall-back "Plan B." Our studies of geologic maps of the area indicated that rocks of a similar age, which were deposited in similar marine environments, occurred in an area about 50 miles to the southwest, near the settlement of Mallin Grande. Of added interest was the fact that those marine beds were overlaid by terrestrial rocks, which we hoped might have fossils of land animals. If we could arrange travel to that area, we had hopes that those rocks also might produce fossils.

Upon returning to Chile Chico, we hurried to implement our alternative plan. Although a supply boat would be able to take us to the area, its schedule (it visits each port on the lake only twice a week) would make it impossible for us to return to Chile Chico in time for our return flight to Santiago. But as mayor of the town, Carlos arranged for us to meet the local military "Governador," who offered us return transport on a military boat that was to visit Mallin Grande two days after we would be dropped off by the supply boat. Not much time! But, if we worked quickly, we might be able at least to get an idea of the area's potential.

Arriving at Mallin Grande, the five of us split into groups. Two men — the youngest, and best equestrians — would ride with a local rancher to a distant area in which he claimed he had found fossil turtle shell. (We suspected this "turtle" shell might actually be the remains of the carapace, or shell, of a glyptodont, an extinct armored relative of the armadillo.) The three others would prospect the exposed rocks near Mallin Grande.

The three of us remaining near town had little luck; the sites we were able to visit during those two days produced a few marine invertebrate fossils, but no marine or terrestrial vertebrates.



The three of us remaining near town had little luck; the sites we were able to visit during those two days produced a few marine invertebrate fossils, but no marine or terrestrial vertebrates.

(Continued on page 13)

A SEMINAL PERIOD FOR SYSTEMATICS RESEARCH

By Willard L. Boyd
President, Field Museum



Most basic research in the United States is conducted in universities, health centers, and government laboratories. There are also a few free-standing basic research institutions. The Field Museum is one.

Our encyclopedic collections, exceeding 19 million items, are the basis for continuing study of the evolution of ecological and social patterns. These irreplaceable collections are as much a part of the nation's research infrastructure as the celebrated superconducting supercollider. Our paleontological, botanical, zoological, geological, and anthropological collections are a crucial record of diversity and change. How and what we learn from these collections changes over time as new insights and new techniques are applied to this indispensable data base.

This is a particularly seminal period for collection-based research, known as systematics. Biochemical techniques, coupled with computer modeling, make it possible to know more about evolutionary processes and to speculate about conditions which will affect them in

the future. At the same time, the population explosion is placing unprecedented strain on the environment. The world's highest risk ecological problems include habitat alteration and destruction and the resulting extinction of species and loss of biological diversity. These problems are at the core of systematics research. As a result of the work of scientists like those at Field Museum, conservation groups such as the World Wildlife Fund and Conservation International are able to take steps to preserve endangered environments. Biomedical science uses systematics knowledge of organisms to address issues of disease, pollution and famine.

The 34 curators on the staff of the Field Museum are actively involved in basic systematics research and in disseminating the fundamental knowledge they discover. Together, the University of Chicago, the University of Illinois at Chicago, and the Field Museum make Chicago the world's leading center for the study of evolutionary biology. Through the Committee on Evolutionary Biology at the University of Chicago, graduate students earn their degrees using Field Museum collections as a basis for their dissertation research, and our curators serve as their thesis advisors and course instructors. The curatorial staff is assisted by our able and diverse scientific support staff concerned with research techniques

and the preparation and conservation of objects in the collections. In 1990 alone, outside research grants totalled \$1 million.

Each year the Museum sponsors an international seminar on evolutionary biology. This year's topic, "The Origin of Anatomically Modern Humans," is one that can quickly be seen to be dependent upon systematics research. It focuses on the critical question of when the first truly modern human beings emerged; this issue is related both to the first development of culture — art, symbolism, language — and to the biological differences between Neanderthals and *Homo sapiens sapiens*.

The Museum's collections are used by scientists from all over the world who either come to Chicago to conduct research, or who borrow specimens. Moreover, we work closely with scientists and students in countries where we do field work to build local collections and train scientists. Museum curators regularly publish their findings in scientific journals.

Our encyclopedic collections and basic systematics research also enable the Museum to be a Chicago center of public learning about the world's diverse environments and cultures. We work with schools in augmenting their biology and science curricula. We also have a responsibility to inform all citizens about the world's physical environments and cultures through our exhibits and public programs.

This is a time when collection-based scientific research will have far-reaching impact on the future of our world's environments, in terms of both ecological and human interactions. The Field Museum is at the forefront in new basic discoveries which will affect our lives and in broadening public understanding of the fragile world in which we live.

FOUNDERS' COUNCIL AWARD TO DANIEL H. JANZEN, ECOLOGIST

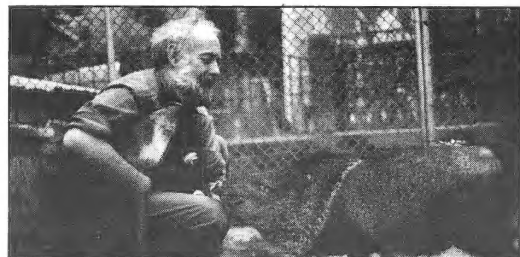
Daniel H. Janzen, professor of biology at the University of Pennsylvania, will receive the Field Museum Founders' Council Award of Merit at a dinner on April 10.

Janzen, one of the leading tropical ecologists in America today, spends half of each year in Costa Rica, where he has undertaken the monumental and rewarding task of trying to restore some 200,000 acres of Costa Rica's tropical dry forest that has been ravaged by farming and ranching.

He also serves as a member of the board of directors of the National Biodiversity Institute of Costa Rica, which is dedicated to promoting scientific literacy and ecological awareness in Costa Rican society. The Institute publicizes ways to use wild areas as a multi-use, sustainable natural resource.

Janzen was named a Fellow of the American Academy of Arts and Sciences in 1990. He received a 1989 MacArthur Fellowship and the 1989 Joseph Leidy Medal from the Philadelphia Academy of Natural Sciences. He was the 1984 recipient of the Crafoord Prize in

Daniel H. Janzen with peccaries in San José, Costa Rica



coevolutionary ecology from the Swedish Royal Academy of Sciences — a prize widely regarded as the Nobel Prize of biology.

Janzen's name will be added to an illustrious roster of previous Founders' Council Award of Merit recipients, among them Stephen Jay Gould, noted author and Harvard University paleozoologist, Roger Tory Peterson, the wildlife artist and naturalist; and Sir David Attenborough, the zoologist and internationally famous documentary film maker.

The Founders' Council is a group of patrons devoted to promoting understanding and support for Field Museum's role as an international center for scientific research. The Council periodically presents the Award of Merit to people who have made significant contributions to the study of natural history.

\$375,000 N.S.F. GRANT

Field Museum has been awarded a \$375,000 National Science Foundation grant to help renovate its paleontological research facilities. The grant was among 78 announced in January, totalling \$39 million, for improvement of scientific facilities nationwide. Field Museum was the only Illinois institution among the grantees, and one of only three museums in the country.

The grant requires the Museum to raise \$425,000 in matching funds from other sources.

The renovation will affect some 6,700 square feet of laboratory space, including fossil and rock preparation facilities, the geomagnetics research laboratory, and the image analysis laboratory.

Projected renovations for the preparation facilities include improved ventilation, plumbing, and electrical service, new workbenches, and an enclosed area for air-abrasive operations. Modernization of the geomagnetics laboratory includes a magnetically shielded room protected from ambient or fluctuating external magnetic fields, as well as upgraded electrical service, lighting, plumbing, compressed air lines, and ventilation. New countertops and storage areas will be built.

The grant will also enable the Museum to provide a dedicated, vibration-free environment for its photomicroscopes and the video-based data capture and image analysis system, currently housed in separate, cramped, and vibration-prone areas. The new space will permit increased use of the equipment and the development of integrated applications.

ERRATUM

The uncredited drawings accompanying David S. Reese's article on archaeology and the Gulf crisis (Jan./Feb. 1991, p. 11) were made by Catherine Sease. As published, the illustrations are third-generation reproductions from photocopies and do not reflect the quality of Ms. Sease's work. We regret the several breaches of standards involved.

In the Field

March/April 1991
Vol. 62, No. 2

Editor:
Ron Dorfman

Art Director:
Shi Yung

Editorial Assistant:
Steve Crescenzo

In the Field (ISSN #1051-4546) is published bimonthly by Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago IL 60605-2496. Copyright © 1991 Field Museum of Natural History. Subscriptions \$6.00 annually, \$3.00 for schools. Museum membership includes In the Field subscription. Opinions expressed by authors are their own and do not necessarily reflect policy of Field Museum. Unsolicited manuscripts are welcome. Museum phone (312) 922-9410. Notification of address change should include address label and should be sent to Membership Department. POSTMASTER: Send address changes to In the Field, Field Museum of Natural History. Second class postage paid at Chicago, Illinois.

BEETLES, BRYOPHYTES, AND ANCIENT BONES: THE FUTURE OF RESEARCH AT FIELD MUSEUM

By Jonathan Haas
Vice President, Collections and Research

What is the future of scientific research at Field Museum? How is the research at a major museum different from research at a large university? What is the distinctive role that collections-oriented research programs at an institution such as ours can play in the broader fields of biology, geology and anthropology? What contribution can and should we be making toward addressing critical natural and social issues facing the nation and world today?

As one of the great museums of the world with comprehensive, global collections, these questions are central to the mission of the Collections and Research Division of Field Museum. These questions have stimulated a broad reexamination of our research objectives, particularly in the biological sciences.

An additional impetus has been a general concern over the status and stature of museum-based research and systematic collections in the larger community of biology. There has been serious discussion in both the professional literature and the national press about the health of science and science education in general in the United States today and about the specific difficulties being faced by museum-based science in particular.

In evaluating where we are and where we are going, we continue to recognize that the comprehensive collections of Field Museum stand at the very heart of our mission as a scientific institution. The collections distinguish us from most major universities, and collections-based research distinguishes our research from other subfields in biology. Our curators build new collections and study existing collections in order to answer critical questions about the evolution, ecology, geography and diversity of various groups of plants and animals around the world.

In general, the biological research on collections at Field Museum and other museums of natural history falls into the field of "systematics." What is systematics? In simplest terms it is a branch of biology that incorporates three levels of inquiry: discovery, description and classification of biological diversity; interpretation and definition of the relationships among the world's flora and fauna; and explanation of the patterns and processes that we see operating in the evolution of biological systems.

Systematics, in turn, is based on general principles of "taxonomy," which is the orderly classification of plants and animals according to their natural relationships. This orderly clas-

'We have a challenge . . . to champion the role of systematics in the scientific community as key to the global arenas of conservation, biodiversity, and theories of evolutionary biology.'

sification involves both the naming of species and the placement of species into more inclusive ranks or categories such as genus, family, order, etc. through to kingdom. The taxonomy of systematic biology is really an inference about the history, nature and degree of relationships between various plants and animals. Taxonomy is thus not the end goal of systematics, but a means biologists use to arrive at a better understanding of the natural world.

Comprehensive natural history collections are central to the pursuit of systematics. Systematic biologists need these collections in order to examine similarities and differences within organisms of a particular species, to distinguish different species within similar kinds of organisms, to compare organisms in different ranks and taxa, and to assess changes in the

world's flora and fauna over time. Botanists and zoologists can use the collections to look at shorter term change in recent centuries while paleontologists study evolutionary change spanning millions of years.

While systematics is an inherent part of biology, in recent years professional concern has grown over a long-term decline in the community of biologists within the field of systematics. The thrust of a number of recent publications is that systematics is becoming extinct at almost the same rate as the organisms studied in the field. There are many reasons for this decline, among them the immediate allure of conservation itself and exciting technological developments in genetics and molecular biology. University students have been attracted away from systematics by the major funding that is going into the "high-tech" frontiers and the glamor of studying the life and habitat of the known endangered species. At the same time, it must be recognized that the grandfatherly position of systematics at the foundations of biology has been taken for granted, and there has not been a concerted effort to articulate the central importance of systematics to all of the biological sciences. We have not been very effective in demonstrating to either the scientific community or the general public that systematics remains a critical element in successful biological research.

Yet everywhere we look in biology we can see the importance of systematics. A conservation plan for a region, for example, cannot be constructed without a systematic inventory of the plants and animals that live there. Comprehensive ecological research cannot be carried out if we lack the resources to identify the diversity of species whose ecological systems are in question. Biomedical research cannot be conducted without first understanding the taxonomy of the test organisms involved and their natural evolutionary relationships. How the different species of the world evolved cannot be discovered without knowledge of the relationships between those species. Basically, it is impossible to conduct viable biological research without systematics. Inventories, species identifications, the study of natural variation, and the determination of evolutionary relationships are integral components of systematic biology and form the foundation of all modern biology.

Signs of resurgence

There are signs of a resurgence within the systematics community as we enter the 1990s. There are beginning to be more jobs available for systematists, there are more systematics publications carrying more articles than at any time in the past, and the level of funding for systematics research by the federal government is rising. This resurgence is due to an increasing awareness that systematics is indeed central to all the other subfields of biology. Molecular biologists, medical researchers, ecologists, and conservationists alike are finding it difficult to resolve persistent questions without knowing the systematic relationships of the organisms they study.

Other factors contributing to a turnaround in systematics are to be found in dramatic changes in the nature of the research itself, and impressive new techniques provide unexploited new sources of data for systematic studies. For example, systematic biologists are making use of biochemistry to unlock the genetic code of the organisms they work with, and great advances have been made in marrying systematics with optics and computers. Coincident with these changes in techniques and methods, the philosophical framework within which the data are evaluated has also been altered signifi-

cantly. In recent years, two very different schools of thought have developed with distinct ways of looking at the data from collections: "cladistics," organization of plants and animals based on their evolutionary relationships, and "phenetics," organization based on the physical and genetic similarity of organisms.

These two different approaches have had a great impact on the science of systematics by giving greater substance to species identification and resulting in much more rigorous taxonomic classification systems.

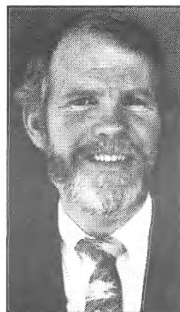
Another recent revolution in systematic biology centers around the physical means of analyzing data. The ease with which scientists today can access powerful computers has made possible a degree of data processing that was unthinkable ten years ago. Statistical tests, computer simulations, and other forms of serious data processing enable rapid and efficient testing of theories to explain patterns of biological evolution. In the past decade a sophisticated microcomputer has become a crucial tool for every systematic biologist. Ten years ago there were only two personal computers in the building at Field Museum, while today every curator and professional staff member has a microcomputer at hand to both record data and to process that data efficiently and effectively.

Altogether, computerization, new analytical techniques, and the philosophy of the discipline have combined to effect major change and modernization in the field of systematics. With this relatively recent transformation, there is a growing recognition of the need both to promote and actively demonstrate the vital contribution that is to be made by systematics to the biological sciences and to our understanding of the nature of living systems.

Field Museum in many ways is in an optimal position to assume a leadership role in the reemergence of biological systematics. We have today world-class collections in zoology, botany and paleontology that provide the foundation for research into the evolution and diversity of species from the tropical rain forests of South America to the growing deserts of Africa. In the past ten years the curatorial faculty has been recharged with a commitment to the evolving field of systematics and to the exploration of patterns and processes in the biological universe. There is a challenge before the research community at Field Museum today. We have a challenge to step beyond our individual systematic research goals and actively champion the role of systematics in the broader scientific community as key to the global arenas of conservation, biodiversity, and theories of evolutionary biology.

These are exciting times for the Collections and Research Division at Field Museum. As we approach the Centennial celebration of the Field, it seems a good time to reexamine our mission and the direction we wish to take in setting off on a second century. A recent external review of our Zoology Department was helpful in both reaffirming the quality of our program and offering constructive comments about how we can be even better. We will be conducting similar reviews of the Geology and Anthropology departments in the coming year and Botany the year after. In each case we look forward to the valuable advice of outside colleagues looking in with a fresh and critical eye. At the same time, each department is articulating its own mission and goals for the future, and together we are asking what we want to accomplish as an institution.

When the Field opened in 1894, there were great expectations for what we could accomplish as a scholarly institution. Most of those expectations have been fulfilled and indeed exceeded. We are now poised to go into the next hundred years with a renewed sense of excitement about our potential to contribute to a better understanding of nature and culture through our collections and research activities.



MUSEUM VOLUNTEER BUILDS DEVICE FOR DATING POTTERY

By Ron Dorfman

A Field Museum volunteer has built and donated to the department of anthropology a device that permits inexpensive but reasonably accurate dating of pottery.

The volunteer, Edward H. Yonkers, is an 88-year-old Evanston resident who has 58 patents to his credit, some dating back to the 1920s — inventions, he said, that include “everything from vacuum tubes to vacuum cleaners.”

Yonkers began working on the device when he was living in San Miguel de Allende, Mexico, after his retirement as chief engineer and research director of Joslyn Corp., a manufacturer of powerline equipment. He had become interested in the historic indigenous cultures of the area, and knew enough to suspect that some of the pottery he saw in museums seemed to be dated incorrectly.

“I’d been reading about British research on thermoluminescence,” he said, “and began to think about putting some equipment together

to help the Mexican archaeologists.” Thermoluminescence occurs when silicic crystals like quartz are heated. The quartz has absorbed natural radiation, but the electrons emitted by the radioactive atoms are trapped in the crystal structure on what Yonkers describes as “shelves” — states of high energy. When the crystal is disturbed by heat, however, the electrons are “knocked off those shelves” to states of lower energy, generating detectable light.

This means that when clay, which is mostly silicates, is fired to make pottery, all the trapped high-energy electrons are converted to low-energy states. Starting at zero, the finished pot immediately begins absorbing natural radiation again, and new electrons are trapped at high-energy states in its crystal structure. Hundreds or thousands of years later, by heating the pottery and measuring the emitted light, one can get some idea of when the clay was fired. But, Yonkers said, because clays of varying composition absorb natural radiation at differing rates, “I realized you would need an

irradiator to gauge the sensitivity of the material” — a device to deliver a measured dose of radiation from which one could deduce a sensitivity factor for the particular piece of pottery. Because he and his former employer had worked with nuclear materials during World War II, Yonkers was able to obtain a government license to purchase a high-energy beta irradiator from General Dynamics.

Unfortunately,

Yonkers said, although he gradually improved the equipment — it consists mostly of commonly available components ingeniously rigged together — bureaucratic problems prevented him from taking the irradiator to Mexico, “so it sat in my lab for years, and then the Atomic Energy Commission suggested I take it to a university or other institution that had the proper license.”

About a year ago, Yonkers approached Bennet Bronson, chairman of Field Museum’s Department of Anthropology, and Charles S. Stanish, assistant curator of Middle and South American archaeology and ethnology, and demonstrated the device’s capability.

To find the age of excavated pottery, Yonkers crushes a shard to a fine grain and seives it to separate out grains between 80 and 120 microns in diameter, which are most likely to be quartz. Each mineral releases light at a characteristic rate at a given temperature, so he then heats the grains and measures the emission of light as the temperature rises.

The rate of increase of naturally occurring radiation is known to be 0.5 rad per year. (A rad is a unit of absorbed energy equivalent to 100 ergs per gram of irradiated material.) To determine the absorptive efficiency of the shard, Yonkers uses the high-energy beta irradiator to fire electrons at it at a measured rate, so that each fifteen minutes of irradiation equals 550 years of natural radiation. By repeating the thermoluminescence process under these controlled conditions, Yonkers obtains a factor that he can apply to his first reading. He says the resulting estimate of the age of the pottery is accurate to within a few hundred years, and a higher degree of accuracy can then be obtained by studying conditions in the area where the shard was found.

Bronson and Stanish were impressed, and Yonkers has now set up the device in the third-floor anthropology hall and is training Stanish to use it. Stanish said it has already proved its worth. “He’s calibrating his machine on some of our pieces from Peru, and it’s helping us understand the succession of cultures at Lake Titicaca,” Stanish said.

Edward H. Yonkers with the pottery-dating device he has built and donated to the Museum.



Ron Dorfman

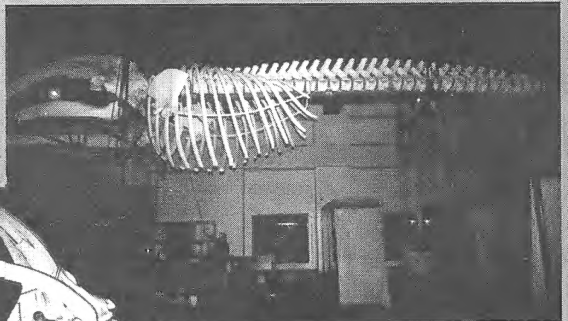
‘BYE FOR NOW . . .

Some familiar friends are gone temporarily, but will soon find new and better homes in the Africa and Animal Kingdom exhibits. Preparators Nick Silva, Martin Giese, and Bill Driscoll work on de-installing the male lion from the East African lion diorama, while Conservation Department intern David Rasch attends to Mom and the kids. Also on the move (and on the mend) is the black right whale skeleton, whose flipper bones had to be amputated before it could be transported through Museum halls. On the job are workers from the Belding Construction Co.

John Weinstein / GN 85692.29



John Weinstein / GN 85691.33



James Balodimas / GN85704.12

James Balodimas / GN85705.11

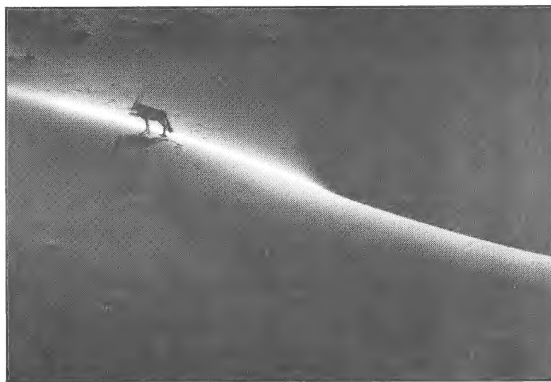


CALENDAR OF EVENTS

WILDLIFE PHOTOGRAPHY OF JIM BRANDENBURG

Forty images from the career of wildlife and nature photographer Jim Brandenburg are featured in a one-man show that opens in the South Gallery of the Field Museum March 2. Many of the pictures are from Brandenburg's recent work photographing a pack of wild arctic wolves on Ellesmere Island near the North Pole. The wolves accepted the presence of Brandenburg and biologist L. David Mech and allowed the men to accompany them on hunts.

Brandenburg is a contract photographer for the National Geographic Society and was named Magazine Photographer of the Year in both 1981 and 1983 by the National Press Photographers Association. He's also a cinematographer with several television documentaries to his credit.



The traveling exhibit, which was organized by the American Museum of Wildlife Art, will be at the Field Museum until May 12.

THE PLACE FOR WONDER

The Place For Wonder, newly relocated to the Webber Resource Center on the main floor, gives kids of all ages a chance to ignore the hands-off policy of most museums and enjoy a hands-on approach to science.

Everything in the exhibit can be handled and examined, giving visitors the opportunity to play naturalist and get an up-close view of the world they live in.

All four disciplines of the Museum are represented in the Place For Wonder. From botany there is tree bark from all over the world, natural spices, sponges, and more. Geology items on display include different rocks and minerals, stalagmites, and a piece of a meteor that landed in Arizona.

Place For Wonder also lets the visitor become an anthropologist for a while and "visit" Mexico, studying Mexican clothing, cooking items, books, and toys. Those interested in zoology can see and feel animal furs, handle ancient skulls and bones, and even observe the habits of live crickets and tropical cockroaches as they go about their business in a large glass case.

The exhibit is staffed by volunteers who can point out and explain the specimens, which represent every corner of the globe and span millions of years.



Thomas Friedman and Todd Persche install a 180-million-year-old dinosaur bone in Place For Wonder's new location, Webber Resource Center Galley, 1st floor.



MEMBERS' PROGRAM APRIL 12

THE LIFE AND DEATH OF THE DINOSAURS

What exactly happened to the dinosaurs? For 150 million years, they roamed the earth, and then, for reasons we're still trying to figure out 65 million years later, they were wiped out in a mass extinction.

An April 12 lecture at Field Museum, co-sponsored by the Adler Planetarium and open only to members of the two institutions, will try to answer some of the questions surrounding the dinosaurs, offering an inside look at current research in paleontology.

The lecture, on "The Life and Death of the Dinosaur" will be in two parts: Dr. Paul Sereno, assistant professor of organismal biology and anatomy at the University of Chicago, will give a general talk on his research in South America, and the discoveries unearthed by his recent expedition to the Sahara. Dr. David Raup, the Sewell L. Avery Distinguished Ser-

vice Professor of Geophysical Sciences at the University of Chicago, will then discuss the disappearance of the dinosaur, giving special attention to the controversial asteroid collision theory. Both men are research associates in the Museum's Department of Geology.

Dr. Sereno, regarded as one of the nation's foremost experts on the evolution of the dinosaur, will show a videotape of his Sahara expedition, during which his team discovered an extensive graveyard of huge sauropod dinosaurs. He will also discuss the evolution of the dinosaur, citing examples of particular dinosaurs on exhibit at Field Museum.

Dr. Raup has spent years pioneering the application of mathematical approaches to the study of fossils and the history of life on earth. His 1986 book, *The Nemesis Affair*, discusses in detail the possible astronomical causes for

the extinction of the dinosaur, and that topic will be the main focus of his lecture.

The topic takes on new relevance with recent discoveries in Haiti, where geologists have unearthed tiny glass fragments in 65-million-year-old sediments, fragments that the scientists say must have been the product of the extreme heat of an asteroid or comet impact. Their report in the journal *Nature* in February asserts that several characteristics of the glass virtually rule out volcanic origin.

Tickets are \$7, and one guest ticket per member order may be bought for \$10. Tickets are available by mail only; no telephone reservations or charges will be accepted.

The program will be given twice, at 6 p.m. and 8 p.m. No reservations will be taken or refunds given after Friday, March 29. For more information, call (312) 922-9410, ext. 453.

RAIN FOREST ETHNOBOTANY



Richard Evans Schultes with the sons of a Tikuna medicine man

The second in a series of symposiums on "Rainforests: The Chicago Connection," sponsored by the Rainforest Action Group, honors the life's work in ethnobotany of Richard Evans Schultes, the Jeffrey Professor of Biology and director emeritus of the Botanical Museum at Harvard.

Schultes, author of *Where the Gods Reign*, has worked in the American tropics, particularly the Amazon, since 1939, specializing in medicinal and toxic plants and on new sources of rubber.

The forum, hosted by television journalist Bill Kurtis, will be in the Simpson Theater at Field Museum on Sunday, April 7 at 1:30 p.m.

Joining Dr. Schultes on the program will be Mark Plotkin, vice president for plant conservation at Conservation International, and Wade Davis, an ethnobotanist and photographer who has worked extensively in Latin America and the Caribbean. Discussion will focus on natural medicines found in rain forests and the need for conservation programs to preserve this vital resource.

Admission is free and open to the public. "Rainforests: The Chicago Connection" is supported by a grant from the John D. and Catherine T. MacArthur Foundation. For more information, call (312) 327-0239.

3/2 Saturday

Exhibit Opening

"Wildlife Photography of Jim Brandenburg" through May 12 in the South Gallery. (See page 5 for details.)

3/9 Saturday

Discovery Tour

"Tibet Today and A Faith in Exile." 1:30 p.m. Slide presentation on Lhasa and other places now open to tourists in Tibet. The focus is on Tibetan refugees in India (Dharamsala, Darjeeling), Sikkim, and Nepal. Of special interest are slides of the dedication ceremony of a Himalayan Buddhist chorten (religious building) in Indiana by the Dalai Lama. Check weekend "Field Notes" board for gathering place.



3/23&24

Saturday & Sunday

World Music

"Women in Jazz." Singer Rita Warford presents a program celebrating International Women's Month. 1 p.m. and 3 p.m. both days.

4/7 Sunday

Symposium

Rainforest Action Group: Symposium on ethnobotany, 1:30 p.m. in Simpson Theater. (See page 5 for details.)

4/10 Wednesday

Founders' Council

Founders' Council Award of Merit Program and Dinner honoring Daniel H. Janzen. (By invitation only.)

3/11 Monday

Camera Club

Nature Camera Club of Chicago, 7:30 p.m. in Lecture Hall 2. Tonight's program is "Techniques of Nature Photography" by Robert Farrell. The club meets on the second Monday of each month.

4/12 Friday

Lecture

"The Life and Death of the Dinosaur" by Paul Sereno and David Raup. 6 p.m. and 8 p.m., Simpson Theater. Co-sponsored by Field Museum and Adler Planetarium, for members and their guests only. Reservations required by March 29. \$7 for members; one guest ticket per member at \$10. (See page 5 for details.)

3/16 Saturday

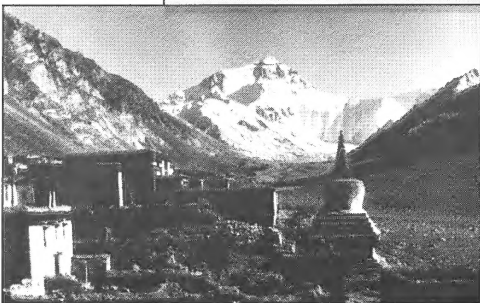
Museum Overnight

Sold out.

3/16 Saturday

Public Lecture

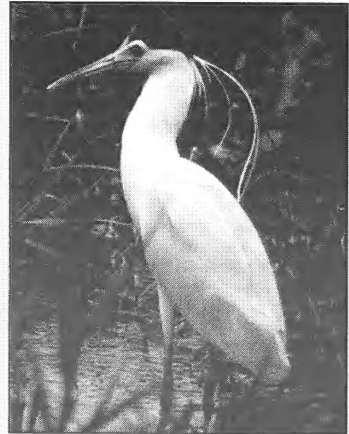
"Sacred Mountains of the World" by Edwin Bernbaum, University of California at Berkeley. The slide-illustrated lecture focuses on the symbolism of mountains in religion, mythology, literature, and the arts. 2 p.m. in Lecture Hall 1. Admission is \$3 for members, \$5 for non-members.



4/15 Monday

Exhibit Closes

Last day to see "The Pantanal: Brazil's Forgotten Wilderness."



4/20 Saturday

Earth Day

See page 12.

4/20 Saturday

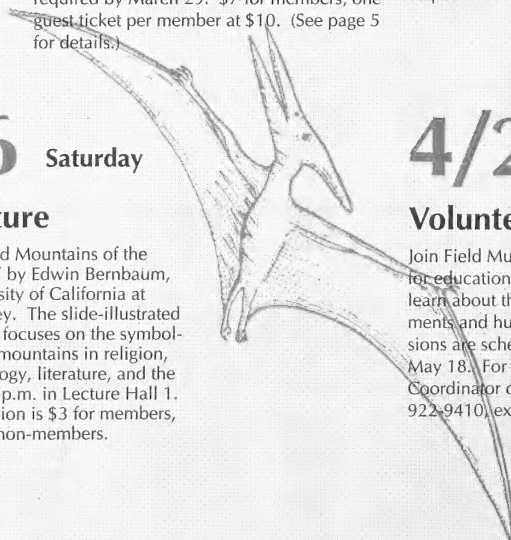
Family Overnight

Sold out. Next available Family Overnight is June 8; use the coupon on page 9 to reserve a spot.

4/25 Thursday

Volunteer Training

Join Field Museum's spring training program for education volunteers, who help visitors learn about the world's diverse environments and human cultures. Additional sessions are scheduled for May 2, May 9, and May 18. For more information, call the Coordinator of Museum Volunteers, (312) 922-9410, ext. 360.



WELCOME

Even though the winds of winter are still blowing cold as this issue is being prepared, planning and advertising our spring field trips lets us know that spring and the time to enjoy the outdoors are not far away! For those of you who have taken our trips in the past, we hope that you will join us for another; and, if you have never been on a Field Museum excursion, I encourage you to try one. Going as a group gives you the opportunity to visit those places you have been meaning to explore with knowledgeable leaders, many of them Field Museum staff. We take care of all the details, so all you need to do is enjoy!

In addition to field trips, you will notice a variety of adult courses for March and April and a special family workshop. Look inside for more details on all our upcoming programs. Remember pre-registration is necessary, and do call us if you have any questions.

Kristen Webber
*Division Head
 Adult, Family, and Children's Programs*

SPECIAL NOTE

Please note that all listings for Adult, Family and Children's Programs now appear in *In the Field*, The Museum's bimonthly newspaper. Those who register for programs, but are not members, will receive a copy of this brochure insert every two months. If you are not a Museum member and not currently a program participant, you can pick up a copy at the Information Desk at Museum entrances.

DIRECTORY

**DIVISION OF ADULT, FAMILY
 AND CHILDREN'S PROGRAMS**
 (312) 322-8854

**NATURAL SCIENCE FIELD
 TRIPS**
 (312) 922-9410 EXT. 362

CHILDREN'S WORKSHOPS
 (312) 922-9410 EXT. 399

**ADULT COURSES,
 PERFORMANCES AND
 LECTURES**
 (312) 922-9410 EXT. 855



PROGRAM PROFILE



FAMILY OVERNIGHTS

Have you ever seen an African elephant by flashlight at three o'clock in the morning? Have you ever strolled through an Egyptian Mastaba in the dark? If you haven't, then you must have missed the last Family Overnight at Field Museum. Overnights give families (parents and children grades 1-5) a chance to see the Museum in a way that they never have before.

In addition to viewing our regular exhibits after hours, Overnights include natural history workshops, an evening snack, a performance such as storytelling or music, flashlight tours, and continental breakfast in the morning.

Our next available Family Overnight is Saturday, June 8th. Use the registration form at the back of this section to sign up. Don't miss the fun!

CCON004, 6:30 p.m. Saturday, June 8 to
 9:00 a.m. Sunday, June 9
 \$30 per adult; \$25 per child

FUTURE PROGRAMS

CAMP FIELD

July promises to be a busy month for fifth through seventh graders when we introduce a summer day camp, "Camp Field". This exciting new program consists of five days of in-depth exposure to various natural science topics. Campers will have the chance to meet specialists in Anthropology, Biology, Geology and Zoology and participate in behind-the-scenes workshops. The May/June issue of "In the Field" will have all the details and registration information. Tentative day camp weeks are July 8-12 and July 22-26. Registration will be limited.

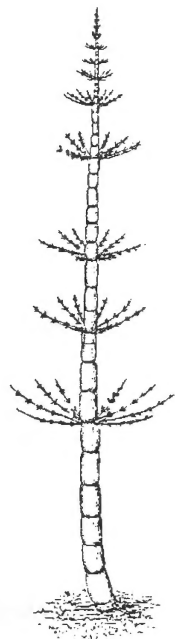
NATURAL NOTE...

HORSETAILS

Horsetails, or Equisetum, were a type of plant common during the Coal Age (300 million years ago). This hollow-trunked plant could grow up to one hundred feet tall with an internal diameter of about twelve inches. This large variety of Horsetail no longer exists, but smaller ancestors can still be found today.

We know of these ancient plants by examining the fossil record in such places as Mazon Creek in Braidwood, Illinois, where concretions formed around plant and animal material from the coal age. Strip mining has created a unique opportunity to study plant and animal life on earth millions of years ago.

Our field trips to Mazon Creek are always popular. This spring we are sponsoring three trips during which participants will hunt for fossils with Peter Laraba, Geology Subject Matter Specialist from Field Museum's Education Department. For details and to register look inside, and remember to register quickly!





FAMILY PERFORMANCE

Tales from Around the World Chicago Mask Ensemble

With colorful exotic masks and dancing, members of the Chicago Mask Ensemble bring folktales to life. Your imagination will transport you to West Africa, Egypt, and a Hopi village as you watch the performance. Families will have the opportunity to see the masks on display after the show.

PP91101 \$10 Adults
PP91101 \$7 Children (16 and under)
Saturday, March 9, 7:00 p.m.

ADULT LECTURE

Sacred Mountains of the World Edwin Bernbaum, Ph.D., Research Associate, University of California, Berkeley

"As the highest and most dramatic features of the natural landscape, mountains have an extraordinary power to evoke the sacred. The ethereal rise of a ridge in mist, the glint of moonlight on an icy face, a flare of gold on a distant peak — such glimpses of transcendent beauty can reveal our world as a place of unimaginable mystery and splendor."

— Edwin Bernbaum

Mount Olympus in Greece, Mounts Sinai and Zion in the Middle East, Mount Fuji in Japan, Kilimanjaro in Africa, and the San Francisco Peaks in Arizona are among the world's most inspiring peaks. Join Dr. Bernbaum for a fascinating journey based on his recent book, *Sacred Mountains of the World*. Through a slide-illustrated lecture he will focus on the symbolism of mountains in religion, mythology, literature and the arts.

LL91000, Saturday, March 16, 2:00 p.m.
\$5 (\$3 members)

ADULT FIELD TRIPS

For all Field Trips please note the following:

- **Age:** The minimum age for adult field trips is 18 years. Students 13-17 years may attend trips only if accompanied by an adult.
- **Transportation:** Most tours leave the West Door of Field Museum and travel by chartered coach. See trip descriptions for exact departure times and specific details. All participants should be at the West Door at least 15 minutes prior to the departure time.
- **Trip Schedule:** The trip route and/or schedule may vary slightly at the leader's discretion.

These Field Trips are funded in part by the Ray A. Kroc Environmental Fund.

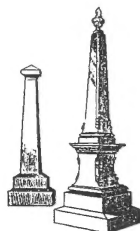


Spring Wildflowers

Phil Hanson, Division Head, Group Programs,
Education Department, Field Museum

Enjoy the beauty of spring wildflowers at their peak of bloom in late April and early May. During the hike, we will explore a diversity of wildflowers, from Bloodroot to Jack-in-the-Pulpit, at Black Partridge and O'Hara Woods. Wear good walking shoes (it may be muddy) and bring a lunch and beverage.

FT91000, Saturday, April 27
FT91001, Saturday, May 4
9:00 a.m.-4:00 p.m., Departs from West Door
\$30 (\$24 members)

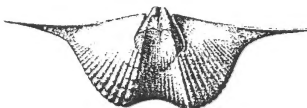


Historic People and Places of Chicago

Irv Cutler, Professor Emeritus, Department of
Geography, Chicago State University

Chicago's most interesting historical periods and events are preserved in the city's architecture, neighborhoods, and cemeteries. Explore the landmarks associated with the Chicago fire, the Haymarket riots, and the Columbian Exposition of 1893 during this all-day bus tour. Lunch is included and the day will conclude with a walking tour of Graceland Cemetery.

FT91002, Saturday, April 27
9:00 a.m.-4:00 p.m., Departs from West Door
\$38 (\$32 members)



Fossil Collecting at Mazon Creek

Peter Laraba, Geology Subject Matter Specialist,
Education Department, Field Museum

Discover Northern Illinois as it existed in the Coal Age (300 million years ago). We will visit Braidwood, Illinois where strip mining has unearthed an area rich in fossils. A marine area during the Coal Age, fossils of jellyfish, shrimp, amphibians, fish are common as well as plants including horsetails and ferns. Discussions of local geology and demonstrations of collecting techniques will assist beginning collectors in their search for fossils. Bring a lunch and beverage and be prepared for wet, muddy areas. Boots are recommended.

FT91003, Saturday, May 4
FT91004, Sunday, May 5
FT91005, Sunday, May 19
8:00 a.m.-5:00 p.m., Departs from West Door
\$30 (\$24 members)

Chicago Waterways

Irv Cutler, Professor Emeritus, Department of
Geography, Chicago State University

Our 70-mile guided tour along Chicago's inland waterways provides a unique perspective on the ecological, economic, and communal history of Greater Chicago. Travel by boat through the Chicago locks into Lake Michigan, south along the Chicago shoreline to Calumet Harbor, down the Calumet River, and through the Cal Sag Channel. We will return to the Michigan Ave. bridge via the Ship and Sanitary Canal and the south branch of the Chicago River. Bring a lunch and beverage. Please Note: Participants meet at the Wendella Boat Dock at the Northwest corner of the Michigan Ave. Bridge (adjacent to the Wrigley Building, 400 North Michigan Ave.) at 8:30 a.m.

FT91006, Sunday, May 5
FT91007, Sunday, May 19
8:45 a.m.-4:00 p.m., Departs from Wendella Boat Dock
\$40 (\$32 members)

Canoeing and Collecting at Sugar Creek

Peter Laraba, Geology Subject Matter Specialist,
Education Department, Field Museum

Join Field Museum's Geology Specialist as you canoe down the upper stretch of Sugar Creek in Crawfordsville, Indiana. Pass through narrow channels, around large rocks, and past historic landmarks as you learn more about this area's geologic formations. Banks and beaches along the way offer numerous opportunities for fossil collecting and for a group picnic. After 15 miles of canoeing, our adventure will end at Deers Mill Covered Bridge. Bring a lunch, and be prepared for wet, muddy areas. Please Note: Participants must have previous canoeing experience — this is not a trip for beginners.

FT91008, Saturday, May 11
6:00 a.m.-7:00 p.m., Departs from West Door
\$60 (\$48 members)

Volo Bog and Glacial Park

Alexia Tryzna, Division Head, Visitor Programs,
Education Department, Field Museum

While Northern Illinois was originally covered with wetlands and bogs (glacially formed lakes with poor drainage, and acidic soils and water), many were drained for agriculture and development. Volo Bog, Illinois' last bog exhibiting all stages of natural succession, is fascinating for exploring this type of community. Many unusual plants are found at Volo Bog, and we will enjoy a variety of early spring wildflowers. Wildlife found in the bog and migrating birds will be also be highlighted. After the bog, visit Glacial Park, which exhibits a variety of glacial topography and ecological communities. Bring lunch and a beverage and wear sturdy shoes — walking will be moderately strenuous. You may also want to bring binoculars, field guides, and insect repellent.

FT91009, Saturday, May 11
8:30 a.m.-4:30 p.m. Departs from West Door.
\$35 (\$28 members)

Hiking the Indiana Dunes

Maryanne Kalin-Miller, Science Teacher,
Frances Parker School

With the emphasis on hiking, experience one of the most ecologically diverse and spectacular areas in the Midwest. Our hike will take us across beaches, dune ridges, and oak-hickory forests as we learn about the unique features found here. Stops will be limited and brief with most discussions occurring at our lunch break. Bring a lunch and beverage, and be prepared for a strenuous hike.

FT91010, Saturday, May 11
8:00 a.m.-4:00 p.m., Departs from West Door
\$30 (\$24 members)

Bird Watching at Horicon Marsh

Peter Dring, Naturalist, Little Red School House Nature Preserve

The 31,000 acre Horicon Marsh in east-central Wisconsin is the largest fresh water cattail marsh in the United States. Spring brings to the marsh a variety of migrating shore and song birds including sandpipers, plovers, and warblers. An explanation of the marsh ecosystem and a demonstration of their bird banding project is also included. Enjoy a premier "birding" spot on this all-day tour. Bring binoculars and field guides if you have them. Don't forget a lunch and beverage, and wear good walking shoes.

FT91011, Sunday, April 28
7:00 a.m.-6:00 p.m., Departs from West Door
\$30 (\$24 members)

ADULT COURSES

Several adult courses will be starting on or after March 19 and were featured in a flyer mailed in late January. The courses are listed below by title. You may call 312-322-8854 to check space availability or to receive more information. Take this opportunity to pursue your favorite topic or discover a new one!

Hatha Yoga (Beginning/Intermediate), Tuesdays, March 19-April 23, 7:00-9:00 p.m., \$55 (\$45 members) AC91002

Dinosaurs for Adults Only, Tuesdays, March 19 and 26, 7:00-9:00 p.m., \$28 (\$22 members) AC91003

Archaeological Analysis, Tuesdays, March 19-April 23, 7:00-9:00 p.m., \$60 (\$48 members) AC91008

Early Man in the New World, Wednesdays, March 20-April 10, 7:00-9:00 p.m., \$50 (\$40 members) AC91001

Native American and Pacific Folklore, Thursdays, March 21-April 25, 7:00-9:00 p.m., \$60 (\$48 members) AC91010

Predynastic Egypt, Thursdays, March 21-May 2 (no class April 25), 7:00-9:00 p.m., \$60 (\$48 members) AC91006



Introducing Gems, Saturday, March 23, 9:00 a.m.-5:00 p.m., \$50 (\$40 members) AC91000

Japanese Bookbinding, Saturday, March 23, 9:00 a.m.-3:00 p.m., \$55 (\$45 members) AC91004

Japanese Bookbinding II, Saturday, April 6, 9:00 a.m.-3:00 p.m., \$55 (\$45 members) AC91005

Sculpted Portraits of the World, Sundays, April 7-21, 9:00 a.m.-noon, \$60 (\$48 members) AC91007

Beginning Balinese Dance: Myth in Motion
Susan Lyon, Balinese Dance Instructor

Performing arts, fundamental to the daily and religious lives of Balinese people, play a vital role in understanding and celebrating their culture. Learn a variety of basic dance movements, including their theatrical and spiritual contexts. The instructor will give an overview of Balinese culture and an in-class performance of a classical Balinese dance will culminate the course. Wear comfortable clothes.

AC91011, Wednesday's, April 3-May 8 (6 sessions), 7:00-9:00 p.m.
\$60 (\$48 members)

Bird Watching for Beginners

Jim Steffen, Ecologist, Chicago Botanic Garden

Bird watching is a wonderful way to explore and enjoy the outdoors. Join us to learn the basics of becoming a "birder." During the first session indoors, Jim will discuss how to choose, use and care for binoculars, and how to use a field guide. Some birds found in the Chicago area will be shown as you learn how to look for field marks or features for bird identification. On the second Saturday, you will meet at the Chicago Botanic Garden in Glencoe for a morning of practicing your new "birding" skills. Bring binoculars and field guides if you have them. Some binoculars will be available for use on the walk. Please note the different meeting times for each session. Directions to the Botanic Garden will be sent with your confirmation.

AC91012, (2 sessions)
Saturday, April 13: 10:00 a.m.-noon
Saturday, April 20: 8:00-10:00 a.m.
\$30 (\$24 members)

FAMILY WORKSHOP

Egg-citing Eggs!

Nancy Saulsbury, Program Developer, Education Department, Field Museum
Betsy Mitten, Fiber Artist

Why are some eggs speckled? Are all bird nests built in trees? With the coming of spring, birds return north and begin building nests and laying eggs. While most of us are familiar with robin's eggs, or the eggs we buy in the store, eggs come in all sizes and colors. Explore the diversity of eggs and nests and then create your own colored eggs with natural plant dyes to take home.

FA91038, Saturday, March 23 (1 session)
10:00 a.m.-noon
\$9 per participant (\$7 per member participant)

TO REGISTER:

Clip the completed registration form below and mail with payment to: Field Museum of Natural History, Department of Education, Program Registration, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605-2497. Please include a self-addressed, stamped envelope. Registrations are confirmed by mail. If you cancel your registration, fees will be refunded only if your place(s) can be filled by another participant. Programs cancelled due to low enrollment will be refunded in full. Questions? Call (312) 322-8854.

Please write separate checks for each program.

Field Trip Locations



REGISTER TODAY!

Registration Form		For Ed. Dept. use only: Date received:		Date mailed	
Name		Membership #			
Address		City		State Zip	
Telephone: Daytime			Evening:		
Program No.	Program Name	# Members	# Nonmembers	Amount	
<input type="checkbox"/> Scholarship requested		<input type="checkbox"/> Check enclosed			
<input type="checkbox"/> AMEX		<input type="checkbox"/> VISA		<input type="checkbox"/> MasterCard	
<input type="checkbox"/> Discover		<input type="checkbox"/> Discover (Check one)			
Card #		Expiration date:		Signature	

VISITOR PROGRAMS

WORLD MUSIC

Saturday, March 2 & Sunday, March 3
1:00

Fan Wei-Tsu
Join Fan Wei-Tsu as he demonstrates the zheng, a Chinese zither.

3:00
Keith Eric
Keith Eric performs music and stories of Jamaica.

Saturday, March 9 & Sunday, March 10
1:00

Rita Warford
In honor of International Women's Month join Rita Warford for a program highlighting women in jazz.

3:00
Prince Bey
Listen to the rhythms of African drums with Prince Bey.

Saturday, March 16 & Sunday, March 17
1:00

Shanta
Discover Africa through the stories and music of Shanta.

3:00
Librado Salazar
Librado performs classical and flamenco guitar.

Saturday, March 23 & Sunday, March 24
1:00

Rita Warford
In honor of International Women's Month join Rita Warford for a program highlighting women in jazz.

3:00
Rita Warford
In honor of International Women's Month join Rita Warford for a program highlighting women in jazz.

Saturday, March 30 & Sunday, March 31
1:00

Eli Hoenai
Join Eli Hoenai for a program of African percussion.

3:00
Mwata Bwoden
Experience the sounds of unusual wind instruments from around the world with Mwata Bowden.

Saturday, April 6 & Sunday, April 7
1:00

Maya Marimba
Join Maya Marimba as they play a variety of Latin American music on marimbas.

3:00
Gideon Alorwoyie
Participate in a program of African drumming and dancing with master

drummer Gideon Alorwoyie.

Saturday, April 13 & Sunday, April 14
1:00

Henry Huff
Henry Huff presents a program of music for the harp.

3:00
Fan Wei-Tsu
Join Fan Wei-Tsu as he demonstrates the zheng, a Chinese zither.

Saturday, April 20 & Sunday, April 21
1:00

The Chinese Music Society of North America
The Chinese Music Society of North America demonstrates instruments of the Chinese orchestra.

3:00
Carlos Cumpián
Carlos Cumpián reads his poetry and tells tales of the Chicano/Mexican culture.

Saturday, April 27 & Sunday, April 28
1:00

Prince Bey
Listen to the rhythms of African drums with Prince Bey.

3:00
Keith Eric
Join Keith Eric for music and stories of Jamaica.

DISCOVERY TOURS

Weekend tours, presentations, and demonstrations on a wide range of topics are offered to visitors free with Museum admission. Most tours meet at the North fountain in Stanley Field Hall. Check the weekend Field Notes Sheet for more details.

Stories Around the World

Saturday, March 2 11:00 & 11:30
Travel to distant lands to meet people of other cultures through the magic of storytelling.

What's New With Dinosaurs

Saturday, March 9 11:00
What do you want to know about dinosaurs? Come, ask questions and learn about the latest dinosaur discoveries, research and theories.

Fireballs And Shooting Stars
Saturday, March 9 12:30
Sunday, March 24 1:30

Meteorites are keys to understanding our universe. Explore the secrets locked in these mysterious objects from outer space.

Tibet Today And A Faith In Exile
Saturday, March 9 1:30

Slide presentation on Lhasa and other places now open to tourists in Tibet. The focus will be upon Tibetan refugees in India (Dharamsala, Darjeeling), Sikkim, and Nepal. Of special interest are slides of the dedication ceremony of a Himalayan Buddhist chorten in Indiana by the Dalai Lama.

Welcome to Field Museum
Sunday, March 10 12:00

Enjoy a sampling of our exhibits on this highlight tour of Field Museum.

Stories Around the World
Saturday, March 16 11:00 & 11:30

Travel to distant lands to meet people of other cultures through the magic of storytelling.

Dinosaur Lifestyles
Saturday, March 16 12:00

Where did dinosaurs live? How did they act? Why did they become extinct? Come investigate some of the latest theories on dinosaurs.

Treasures from the Totem Forests
Sunday, March 17 1:30

A walk through Museum exhibits introduces the world of the Northwest Coast Indians.

Tibet Today & Bhutan, Land of the Thunder Dragon
Saturday, March 23 1:30

See Lhasa and other places now open to tourists in Tibet through this slide presentation. Visit another small Himalayan country, Bhutan.

Brontosaurus Story
Sunday, March 24 12:00

Journey back in time 140,000,000 years to learn about the often misunderstood "thunder lizard".

Stories Around the World
Saturday, March 30 11:00 & 11:30
Travel to distant lands to meet people of other cultures through the magic of storytelling.

Tibet Today & Bhutan, Land of the Thunder Dragon
Saturday, April 6 1:30

See Lhasa and other places now open to tourists in Tibet through this slide presentation. Visit another small Himalayan country, Bhutan.

Fireballs & Shooting Stars
Saturday, April 13 12:30

Meteorites are keys to understanding our universe. Explore the secrets locked in these mysterious objects from outer space.

Stories Around the World
Saturday, April 13 11:00 & 11:30

Travel to distant lands to meet people of other cultures through the magic of storytelling.

Tibet Today & Faith In Exile
Saturday, April 20 1:30

Slide presentation on Lhasa and other places now open to tourists in Tibet. The focus will be upon Tibetan refugees in India (Dharamsala, Darjeeling), Sikkim, and Nepal. Of special interest are slides of the dedication ceremony of a Himalayan Buddhist chorten in Indiana by the Dalai Lama.

WEEKEND ACTIVITIES

Hieroglyphs
Sunday, March 10
Sunday, March 24 2:00 - 4:00

Discover the ancient Egyptian form of picture writing called hieroglyphs. Our scribe will explain these ancient symbols and show you what your name looks like in hieroglyphs.

DINOSAUR WAGON

Weekend Dinosaur Wagon Activities

Learn about dinosaurs and prehistoric life at the Dinosaur Wagon in Field Museum's Dinosaur Hall. See a dinosaur tooth, discover what dinosaurs ate, take a short hall tour and participate in a variety of hands-on activities.

Saturday, March 2 1:00 - 3:00

Saturday, March 23 1:00 - 3:00

Saturday, April 6 1:00 - 3:00

Saturday, April 27 1:00 - 3:00

FOSSIL PREP

How did you get that dinosaur bone to Field Museum?

Come see for yourself how dinosaur bones are prepared for exhibit. Join Steve McCarroll, Field Museum Geology Department fossil vertebrate preparator as he removes the field jacket and matrix from a dinosaur bone collected by Elmer Riggs in 1922. Saturdays, March 2, 9, 16, 23 & 30 11:30 - 4:30 Saturday, April 6, 13, 20 & 27 11:30 - 4:30

HELP WANTED

Become an Education Volunteer at Field Museum.

Join Field Museum's spring volunteer training program for education volunteers and help visitors learn about our diverse environments and human cultures.

A variety of challenging and rewarding volunteer opportunities are now available for both weekday and weekend volunteers.

The spring training sessions will be held on Thursdays, April 25, May 2, and 9

from 6:00 to 9:00 pm and Saturday, May 18 from 9:00 am to 3:00 pm. Contact the Coordinator of Museum Volunteers at (312) 922-9410 extension 360 to attend.

Training sessions will prepare new volunteers to lead Museum tours, facil-

itate hands-on hall activities, and staff interactive exhibits. The training sessions will include a basic introduction to the fields of geology, anthropology, and biology. Topics include dinosaurs, fossils, Native Cultures of the Americas, island biology, introduction to the Animal Kingdom "Nature Walk," Place For Wonder, Pawnee Earth Lodge, the Webber Resource Center and more.

WEBBER RESOURCE CENTER

Native Cultures of the Americas

Visitor Hours:

Weekdays 12:00 - 5:00

Weekends 10:00 - 5:00

Webber Resource Center offers books, newspapers, video and audio tapes, and teacher resource materials about Native Peoples of the Americas.

PAWNEE EARTH LODGE

Visitor Hours:

Weekdays, 1:00 p.m. program

Weekends 10:30 - 4:30

Visit the earth lodge and walk into a traditional home of the Pawnee Indians.

Handle objects and learn about the mid-19th century daily life of the Pawnee Indians of the Great Plains.

A 1:00 program is scheduled each weekday. On Saturdays, there is open house from 10:30 to 4:30, and a 30-minute ticketed program is scheduled at 11:00, 12:00, 2:00 & 3:00. Free tickets are available at the South Desk in Stanley Field Hall. Sundays, open house from 10:30 to 4:30.

1:00 p.m. program is scheduled each weekday. On Saturdays, there is open house from 10:30 to 4:30, and a 30-minute ticketed program is scheduled at 11:00, 12:00, 2:00 & 3:00. Free tickets are available at the South Desk in Stanley Field Hall. Sundays, open house from 10:30 to 4:30.

1:00 p.m. program is scheduled each weekday. On Saturdays, there is open house from 10:30 to 4:30, and a 30-minute ticketed program is scheduled at 11:00, 12:00, 2:00 & 3:00. Free tickets are available at the South Desk in Stanley Field Hall. Sundays, open house from 10:30 to 4:30.

1:00 p.m. program is scheduled each weekday. On Saturdays, there is open house from 10:30 to 4:30, and a 30-minute ticketed program is scheduled at 11:00, 12:00, 2:00 & 3:00. Free tickets are available at the South Desk in Stanley Field Hall. Sundays, open house from 10:30 to 4:30.

1:00 p.m. program is scheduled each weekday. On Saturdays, there is open house from 10:30 to 4:30, and a 30-minute ticketed program is scheduled at 11:00, 12:00, 2:00 & 3:00. Free tickets are available at the South Desk in Stanley Field Hall. Sundays, open house from 10:30 to 4:30.

1:00 p.m. program is scheduled each weekday. On Saturdays, there is open house from 10:30 to 4:30, and a 30-minute ticketed program is scheduled at 11:00, 12:00, 2:00 & 3:00. Free tickets are available at the South Desk in Stanley Field Hall. Sundays, open house from 10:30 to 4:30.

PLACE FOR WONDER

Visitor Hours:

Weekdays 12:30 - 4:30

Weekends 10:00 - 4:30

SPRING SYSTEMATICS SYMPOSIUM

At a conference at Field Museum on "The Origin of Anatomically Modern Man," fourteen internationally renowned anthropologists and biologists will address a number of current, controversial theories on the geographic and evolutionary origins of modern humans. From a variety of perspectives on the frontiers of science, the participants will tackle the age-old questions — Who are we and where did we come from?

The conference, the Museum's 14th annual Spring Systematics Symposium, will be held Saturday, May 11. About 500 participants are expected, mostly professionals and graduate students in the field, though interested laymen are welcome. Pre-registration is required.

The earliest hominid creatures appeared in Africa, and some scholars at the symposium, like Christopher Stringer of the British Museum (Natural History), will argue that anatomically modern humans also originated in Africa and migrated to Europe, Asia, and beyond. Others, like Milford Wolpoff of the University of Michigan, will contend that modern humans evolved independently in many regions of the world. Discussion will also center on the relationship between anatomical and behavioral change in the transition to modern humans, and on the evolutionary relationship between Neanderthals and modern humans.

NEW HELP FOR VISITORS

Members of the Museum's new Visitor Services staff are now on hand to help with both the ordinary needs of visitors and whatever special problems may arise. Kathryn Hill, chairman of Public Services, says her people are "absolutely dedicated to the visitor."

Until recently, the Museum's Security and Visitor Services staff handled most visitor contact. But asking guards to protect exhibits and collections from the public, and at the same time be responsible for welcoming visitors, is asking for a lot. So some of the Security staff and two people from the Membership Department were reassigned to Visitor Services.

The decision, Hill said, was not taken lightly. The Museum's security needs took precedence over all other considerations, and were very carefully analyzed. It was only after President Willard L. Boyd was convinced that all security needs would be fully met that the reallocation of staff was approved.

However, providing quality service to visitors is critical too, so much work was put into that aspect of the program. Planners visited other museums as well as hotels, hospitals, banks, even Disney World — any place where the public is the main priority was scrutinized to help develop a staff and a program.

The planning has paid off. While certain Visitor Services tasks are predictable, like admissions and coat checking, there are also many variables — problems impossible to foresee. That's where the new staff's "troubleshooters" earn their pay. They're on their own, sniffing out problems and using their own discretion to solve them.

Hill cites the staff member who used the new microwave in the staff lounge to warm up a baby's bottle for a visitor, and the troubleshooter who happened to notice that the address on a receipt found with a lost credit card was near his home, so he hand-delivered them. Whatever it takes, she said, her staff will make sure the visitor leaves the Museum happy.

Michael Spock, Field Museum Vice President for Public Programs, has said that a satisfying visitor's experience at a museum rests on a three-legged stool. The first two legs are innovative, engaging exhibits, and accessible, informal educational programs. The third leg is "everything else" — the getting here, the finding a stroller or wheelchair, parking, maps, directories, and the service people.

Hill said the goal is to make that third leg solid by making the Field "the warmest, most welcoming museum in the world."

HUMANIZING SCIENCE WITH 'THE NEW EXPLORERS'

By Steve Crescenzo

The tendency of young people to shy away from careers in science has become alarming. It's been estimated that at current rates, by the year 2010 there will be 700,000 unfilled jobs that require a scientific background. One of the most disheartening aspects of the problem is the lack of minorities involved in science. Young people too often think of scientists as boring, stuffy old men cooped up in laboratories all day.

The Field Museum and other Chicago science-education institutions, working with veteran Chicago journalist Bill Kurtis (a member of Field Museum's Board of Trustees), are hoping to reverse that trend with the Chicago Science Explorers Program. Funded by the U.S. Department of Energy, the program is designed to get children interested in the sciences, and to encourage them to pursue careers in scientific fields. It tries to show students the other side of science — the exciting, adventuresome, Indiana Jones side of exploration and discovery.

The program centers on the new public-television series *The New Explorers*, a co-production of WTTW/Chicago and Kurtis Productions, Ltd. The show's 13 episodes, being broadcast nationally, are aired in Chicago on Channel 11 on Wednesday and Sunday evenings. We see the scientists, including many from Chicago institutions like the Field Museum, Brookfield Zoo, and Adler Planetarium, breaking new ground in their respective fields. Whether they're scaling a 75-foot tree to study an eagle's nest, journeying to the Amazon rain forest to search for medicinal plants with a medicine man from the Tirio Indian tribe, or probing 1,000 feet down to the

Field Museum educators Maija Sedzielarz, Joyce Matuszewich, and Dr. John Wagner, working with eight schoolteachers, used the "Islands in the Jungle" episode of *The New Explorers* to create a curriculum on the rain forest. In this episode, Kurtis travels from the sacred Inca city of Cuzco, Peru, down into the Amazon Basin, where Field Museum ornithologist John Fitzpatrick wraps up a five-year project to confirm the discovery of a new species of bird found exclusively in cloud forests on mountain ridges that rise above the Amazon jungle. Also featured in the episode are Field Museum ornithologists David Willard and Scott Lanyon and botanist Michael Dillon. ("Islands in the Jungle" airs Wednesday, March 6 and Sunday, March 10 in Chicago.)

Teachers involved in the curriculum-development project were Lou Ellen Finn of Hayt School; Marlene Furch of Decatur Classical School; Murray Hozinski of University of Chicago Lab School; Teresa Lazlo of José de Diego Academy; Rita Nelson of Kenwood Academy; Kathleen Tomzyk of Plamondon School; Pam Samulis of Saucedo School; and Hene Wagner of O.A. Thorpe Academy. Project director for the Field Museum is Carolyn Blackmon, chair of the Education Department.

The Field Museum package walks the student through a rain forest, identifying different species of birds and plants inhabiting that ecosystem. Included in the package are hands-on experiments, interviews with Field Museum scientists, activities for the students, and activity sheets for the student to fill out on a visit to the Field Museum. Teachers may borrow the tape and teaching materials from the Museum's Harris Educational Loan Center (312-322-8853). Also available for loan is an experience box titled "Explore! Rain Forest," developed by the teacher group for the Chicago Explorers project. The box contains rain forest materials including bird specimens, jars of spices to smell, an audiotape of rain forest sounds, and other items.

So far, 150 Chicago teachers have participated in the Chicago Science Explorers Program at Field Museum. To familiarize themselves with scientists and their work, the teachers come to the Museum for a one-day inservice. Here they watch the videotape, talk with some of the scientists featured in the tape, participate in workshops demonstrating relevant hands-on classroom activities to go along with the tape, and tour the Museum halls that have related exhibits. Upon leaving, the teachers are given a copy of the videotape, the packet of teacher materials, and a bus voucher for their class visit.



Above, Bill Kurtis in southern Peru for an episode of *The New Explorers* in which an Adler Planetarium scientist examines giant figures, shapes, and lines etched in the desert.

At left, Kurtis travels with Field Museum ornithologist John Fitzpatrick in the Peruvian Amazon.



depths of Lake Superior to see what effects pollutants have had on the largest body of fresh water in the world, these scientists are anything but boring and stuffy.

Each participating local institution selected a tape from the *New Explorers* series and then worked with a group of Chicago teachers, the University of Chicago Lab School, and Argonne National Laboratory to develop a curriculum that combines the videotape of the show with teaching materials and hands-on activities for students. Energy Department and State of Illinois funding also covers the cost of teacher training and class visits to the institutions that are part of the program: Adler Planetarium, Argonne National Laboratory, Brookfield Zoo, Chicago Academy of Science, Field Museum, Lincoln Park Zoo, Museum of Science and Industry, Shedd Aquarium, Commonwealth Edison Co., the Chicago Police Department, and the International Museum of Surgical Science.

With *The New Explorers* airing nationally, Amoco Corp. and Waste Management, Inc. have helped subsidize a national marketing campaign for the teaching materials.

COMING IN MAY...

'CHICAGO DAY'

Free Sunday admission and a variety of special programs are scheduled for Chicago Day, May 5, marking a five-year period of centennial celebrations for Field Museum and a dozen other leading cultural, educational, and social-service organizations.

The CTA will also provide free bus service for visitors traveling among the participating institutions.

Field Museum programs for Chicago Day include the Chinese Music Society of North America presenting "Instruments of the Chinese Orchestra" at 1 p.m. and Midawo Gideon

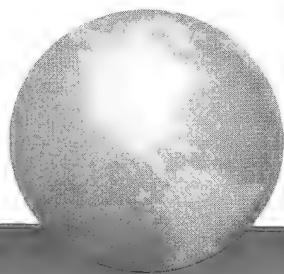
Alorwoye presenting African dance and drumming at 3 p.m.

Other sponsoring institutions are the Art Institute, the Auditorium Theatre/Roosevelt University, Chicago Academy of Sciences, the Chicago Botanic Gardens, Chicago Historical Society, the Visiting Nurses Association of Chicago, the Chicago Symphony Orchestra, the Frank Lloyd Wright Home and Studio Foundation, Hull House Association and the Jane Addams Hull House Museum at the University of Illinois at Chicago, and the Illinois Institute of Technology.



James Balodimas GN85714.10

Shanta delights children with African folk tales and music during African Heritage Festival in February.



SAVE THE DATE SAVE THE EARTH

Earth Day: April 20, 1991

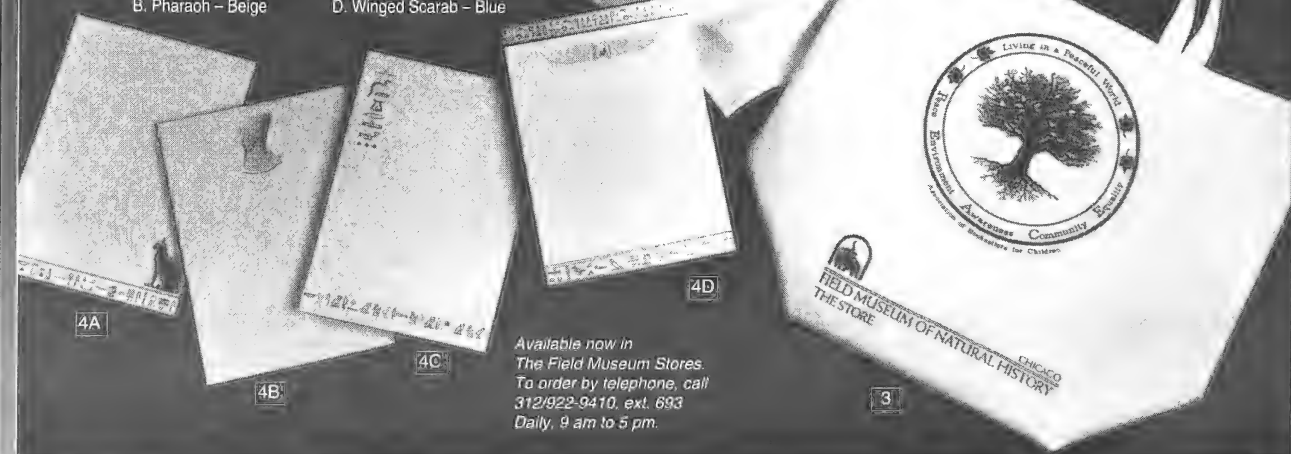
A month-long festival
of special programs at Field Museum

Field Museum will observe the entire month of April with special weekend programs promoting ecological awareness. Check the "Field Notes" boards at Museum entrances for each day's activities.

SOMETHING TO REMEMBER US BY...

Souvenir Selections from the Museum Stores

1. Museum Six-Color Fun Sweatshirt
Adult M-L-XL \$20.00 (Members \$18.00)
Adult XXL \$22.00 (Members \$19.80)
Youth 6-8, 10-12, 14-16 \$16.00 (Members \$14.40)
(Also available as T-Shirt!)
2. Fun Mug \$6.50 (Members \$5.85)
Buy 4 and save! 4 for \$20.00
3. Reusable Grocery Bag
Sturdy natural canvas \$10.00 (Members \$8.00)
4. Egyptian Motif Stationery - Four Designs
20 printed sheets/20 envelopes \$10.00
(Members \$8.00) Choose from:
A. Egyptian Cat - Peach C. Heiroglyphs - Grey
B. Pharaoh - Beige D. Winged Scarab - Blue



Available now in
The Field Museum Stores.
To order by telephone, call
312/922-9410, ext. 693
Daily, 9 am to 5 pm.

PATAGONIA

(Continued from page 1)

brates. As it grew later in the evening before the arrival of the military boat, we began to worry: Our colleagues Andre Wyss of U.C.S.B. and Mark Norell of the American Museum had not yet returned. At 9:30 p.m., in the deep dusk of the summer evening, we saw four horses moving slowly along the road toward us, pacing almost sideways from fatigue. From their saddles, Andre and Mark braced themselves on our shoulders and slid to the ground. As we walked to our cabin they talked about their incredibly long trip (eleven hours riding, each way) across torrential rivers and steep slopes, about the impressive endurance of their horses, and about having only a few hours to look for fossils in the late afternoon and the morning after their arrival at the site.

We lit some candles and poured some tea. Smiles crept across their faces as each produced a canvas sack. Onto the table poured numerous fossils of both small and large mammals — rodent jaws, marsupial teeth, ungulate limbs and palates, glyptodont armor scutes — and shells of a variety of marine invertebrates! Even their short visit had been a tremendous success, a major paleontological discovery. Sitting, or standing (for the saddle-sore among us), on the deck of the military boat the following morning, we gazed toward the cliff slopes in the distance, excited by the prospect of a full-scale expedition returning to the area the next year.

In the two years that followed, our crews of six paleontologists scoured the rock surfaces over a broad area, finding fossils throughout a column of rock more than 1,000 feet thick. We collected over 1,000 specimens of fossil mammals, representing more than 25 species, and more than 70 species of fossil marine invertebrates. Comparing them with collections of fossils of known age at the Field and other museums, we have determined that this fossil deposit is about 16–18 million years old. Our dating of lava flows indicates that the whale site is about the same age.

Our find represents the first significant discovery of fossil mammals from Chile in more than 100 years. It is the westernmost high-latitude fossil mammal assemblage ever found in South America, and it provides new evidence about the evolution of mammals in geographic areas and environments never before sampled.

Even though the site is only 100 miles from the Pacific Ocean, the assemblage of marine invertebrate fossils is very closely allied with Atlantic Ocean communities. This indicates that there was a seaway extending across Patagonia from the Atlantic Ocean, but that it was separated from the Pacific by coastal peaks of the proto-Andes Mountains.

We found a transition from deposits containing marine fossils to rocks bearing land fossils which occurred around 16–18 million years ago; today these marine fossils lie at elevations of 4,000 to 6,000 feet above sea level. This transition probably marks the final withdrawal of the Patagonian seaway from this region, and the beginning of uplift of this region of the Andes.

We have also learned that, in geological terms, the upheaval of the southern Andes was rapid, occurring in less than 15 million years. Our calculations, from the whale site and the new terrestrial-mammal site, indicate that the mountains rose less than one millimeter per year on average, about the width of the head of a pin. Although it seems inconsequential in human terms, this rate of uplift actually is quite rapid and violent, corresponding to a catastrophic earthquake every 100 years that would raise ground level by one to four inches over vast areas. Such rates are sufficient to raise mountains such as the Andes and the Himalayas from below sea level to over 20,000 feet in just tens of millions of years.

Although rich fossil beds were discovered in nearby Argentina more than 170 years ago, Chile had remained a paleontological mystery, in large part because of the logistical problems of work in the remote terrain of much of the country.

The extremely rugged terrain of remote Chilean Patagonia, with fjords cutting deeply inland from the Pacific and high Andean peaks,

precludes building a continuous roadway from north to south in this narrow country, and the environment is harsh. Assuming all goes perfectly, the trip from the United States to our field area requires a minimum of seven days, and involves transportation by plane, boat, truck, horse, and foot. Patagonia also is infamous for its biting winds — we experience

American "plate." This process of "subduction" generates volcanic magmas and intense heat deep within the earth, causing bulging and uplift of the crust as the magmas rise to erupt at the surface along the Andean chain.

Such environmental and topographic diversity, coupled with the fact that South America has been an island continent for most



Fossil whale vertebrae from the Andes helped explain how and when the mountains rose.

daily winds of 30 miles an hour, with winds on some days averaging 50 to 60 mph. Even though we can only work in the Patagonian Andes during the austral summer (December to February), after the snow melts in the mountains, there is no guarantee of pleasant weather. Summer field garb often consists of wind goggles, gloves, down parkas with waterproof over-shells, and rain pants. In 1988, it snowed on five of our first seven days, and a bitter cold rain confronted us on many of the other days.

The South American continent ranges over 65 degrees of latitude, from equatorial Amazonia, one of the largest remaining tracts of tropical rainforest, to the windswept pampas of Patagonia, lying near the tip of the continent closest to Antarctica. And the Andes Mountains span that entire latitudinal spread, forming a continuous volcanic mountain chain for more than 5,000 miles along all of the western margin of South America, with peaks higher than 22,000 feet.

The Andes is a geologically young mountain chain, formed by plate tectonic (or "continental drift") movements of the Earth's surface, as the Pacific Ocean "plate" is being pulled beneath the western edge of the South

of the past 80 million years (until the Isthmus of Panama formed 3.5 million years ago to connect North and South America), has led to the evolution of a remarkable array of plants and animals, many of which are endemic, found only on that continent. Our discovery of 18-million-year-old fossil mammals in Chile helps us understand the evolution of the rich diversity of mammals in South America and the history of the geologic formation and uplift of the Andes.

Paleontological work in Patagonia and the Andes Mountains has been difficult, yet rewarding. It is a wild and harsh land, but an unforgettable one. As Charles Darwin described his visit to this region during the 1830s: "In calling up images of the past, I find that the plains of Patagonia frequently cross before my eyes; yet these plains are pronounced by all wretched and useless. They can be described only by negative characters; without habitations, without water, without trees.... Why then, and the case is not peculiar to myself, have these arid wastes taken so firm a hold of my memory?"

I too remain fascinated by Patagonia.



Michael O. Dillon, associate curator of botany, was named honorary professor at the Universidad Nacional de Cajamarca in Peru in a convocation last October 30. Shown here receiving the diploma from Prof. César Paredes Canto, rector of the university, Dr. Dillon was recognized for his contribution to botanical training and collecting programs under the Museum's Flora of Peru project. This project currently includes cooperative bi-national efforts to inventory threatened habitats and support conservation in northern Peru. Dr. Dillon and a Peruvian colleague, Abundio Sagástegui Alva, have recently published a survey of the family Asteraceae, tribe Inuleae in Fieldiana as part of the continuing work on the Flora of Peru.

TAONGA MAORI

"WE WANT OUR TREASURES BACK"

By John Terrell
Curator of Oceanic Archaeology & Ethnology

The young man stood up at the back of the auditorium after the museum curator had finished his lecture. He said what he had to say calmly but with great intensity. "You have asked what the Maori people want from the museums of the world. I will tell you what we, the Maori people, want. We want you to give us our taonga [treasures] back. That is what we want."

People in the audience, both Maori (the native inhabitants of New Zealand) and pakeha (New Zealanders of foreign descent) were audibly shocked by the young man's daring statement. The lecturer, after all, was a curator at an important European museum. His lecture that day was an official public event at an international conference organized and funded by the New Zealand Government: The Taonga Maori Conference (November 18-27, 1990).

The curator had come halfway around the world to attend the conference. He was an honored guest of the Maori people. Didn't the young man realize that he was overstepping the bounds of proper Maori conduct? Didn't he know that speaking with such bluntness is no way to treat a guest?

man was polite and restrained in his manner and choice of words. As a result, the conference was a meeting of minds from different parts of the world that was marked by friendship, optimism, and an unusual willingness on both sides — native and foreign — to work together.

The Maori organizers of the conference, under the direction of the Cultural Conservation Advisory Council (Roopu Manaakii I Nga Taonga Tuku Iho), had not brought us to New Zealand to talk about repatriation. Instead, they wanted to talk to us about cultural respect and understanding.

During the conference, we learned that the idea of transporting overseas curators to New Zealand to teach them firsthand about Maori thought, customs, cultural achievements, and aspirations had been hatched back in 1986 at the close of the traveling exhibition, "Te Maori: Maori Art from New Zealand Collections," in Chicago.

The kaumatua (senior Maori elders) and kuia (senior women) who had flown to Chicago to officiate at the Maori ceremonies that formally closed the exhibition's tour of the United States were worried. While they were overjoyed that the many treasures exhibited in Te Maori would soon be packed up and sent home to New Zealand, they were fearful that people in foreign museums didn't realize how precious taonga is to the Maori people. And the elders knew that Field Museum has many Maori treasures in its store-rooms. Did these Chicagoans respect the taonga they had in their possession? Did they know how to keep these treasures warm?

Taonga Maori

To the Maori, taonga is anything of wood, bone, stone, fiber, and the like that is an heirloom handed down from the ancestors. Taonga is also anything immaterial such as a traditional song, legend, saying, or story that has been passed down through the generations. In fact, taonga may be anything made, used, or created by someone Maori in the past or present which is thereby infused with the spirit of the Maori people. All such things are treasures. All such things are taonga Maori.

Unlike treasures of gold or silver, however, taonga should not be locked away in strong rooms. Maori treasures should be kept in the living world of the Maori, so that the ancestors who conceived, made, used, and held them may be also part of the world of their living descendants. This is what it means to keep taonga warm: Such treasures must be respected, touched, held, and loved so that the ancestors, too, are kept warm and cherished by their offspring.

The Maori meeting house, Ruatēpupuke II, as it originally stood at Tokomaru Bay. The building is now among the taonga Maori in the Field Museum.

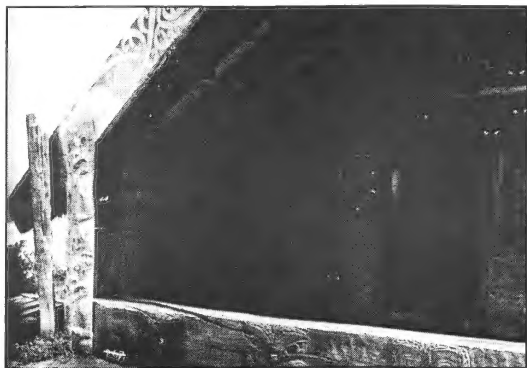


Photo: National Museum, Wellington / FMNH 109972



Maori delegates and Field Museum officials shake hands at 1986 ceremonies formally closing the traveling exhibit "Te Maori."

The Repatriation of Cultural Property

I was in the auditorium that day at the National Museum in Wellington, New Zealand's windy capital city at the southern end of North Island. I was one of the sixteen curators from overseas museums (located mostly in Great Britain and northern Europe) who were in attendance by formal invitation. Unlike some people in the audience, however, I was glad that the young man had spoken so frankly.

I felt that what he had to say was long overdue. It was a relief that someone had finally had the cheek to bring up the issue of returning Maori taonga stored in foreign museums to the New Zealand Maori. All of us at the Taonga Maori Conference had been skirting round the question of repatriation for days. It was good to get it out in the open so that we could finally begin to talk about it.

The return, or repatriation, of human remains and cultural artifacts safeguarded in the world's museums to their original native owners is an important and intensely political issue for museums throughout the world today. All of us at the Taonga Maori Conference from overseas museums had accepted our invitations believing that the Maori would, sooner or later, want to talk to us about repatriation.

Yet until this young man stood up, no one at the conference who was a native New Zealander had openly endorsed the idea of giving back at least some of the Maori treasures kept in museums overseas under our care. Many of us had been waiting for someone to say something. So it felt good to have the waiting behind us.

The Taonga Maori Conference was a remarkable event in the history of foreign contact in the Pacific. It was not a scene of battle; it was not a clash of cultures. Even this young

LOUIS O. WILLIAMS, BOTANIST, 1908 – 1991

By Robert G. Stolze
Associate Curator, Botany

On an icy January 7th in the Ozark Mountains of Arkansas, Louis O. Williams died of a massive heart attack, ending a life that had begun on a similar day, December 8, 1908, on a cattle ranch near the base of Wyoming's Grand Teton Mountains. Somewhere between the Teton and Ozark days, good fortune brought him to the Field Museum for a fifteen-year period during which he led the department of botany to a position of prominence among the world's scientific institutions.

When Dr. Williams joined the Museum staff in 1960, he had already devoted nearly 25 years to research, mostly on Central and South American plants, from positions at Harvard, M.I.T., and the U.S. Department of Agriculture. He was brought to the Museum specifically to lead its work on the *Flora of Guatemala*, a project begun many years before by Paul C. Standley, assisted by the prolific neotropical collector Julian Steyermark. But he was also charged with the responsibility of reviving the founder's *Flora of Peru* project.

Setting promptly to work, he added young botanists to the staff; solicited nearly a million dollars in grants to support herbarium, field work, and publication costs; launched numerous expeditions to Guatemala and Peru; and wrote extensively for publication in the *Flora of Guatemala*. Before he was through, six volumes were published, which finally brought this monumental flora to completion.

On his regular expeditions to the tropics, Williams was almost always assisted by his

wife, Terua, and frequently by young staff botanists or associates he had developed during his years in Central America.

A man of abundant energy and enthusiasm, Dr. Williams coped with the administrative burdens of the department chairmanship, which he assumed in 1964, by arriving an hour or two early each morning in order to do some uninterrupted research, and in later years by taking tactical advantage of his increasing hearing problems, and an adjustable hearing aid, "to cut out the background noise." During most of this time, he served as the Guatemalan consul in Chicago, which further nibbled at his time, but the position afforded practical and political advantages that served his programs well.

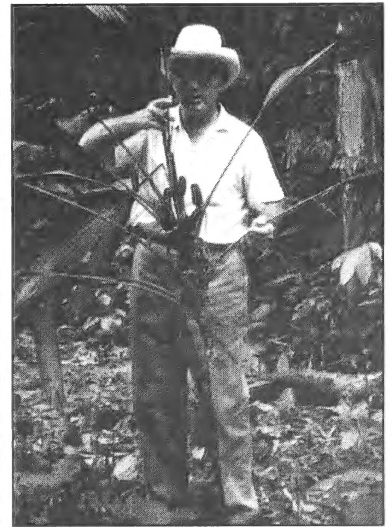
As chairman, Dr. Williams also assigned staff to do field work and research on the *Ferns of Guatemala* and on a Costa Rican flora. The three-volume work on ferns was completed after his retirement, and work on the Costa Rican flora continues today; a number of fascicles have been published in *Fieldiana*.

During his long scientific career, Dr. Williams amassed more than 43,000 "numbers" of plant specimens. (Since botanists customarily collect several duplicates of each plant, this translates to perhaps a quarter of a million specimens.) He produced more than 300 scientific publications, as well as many popular papers in English, Spanish, and Portuguese. He was a founding member of both the American Society of Plant Taxonomists and the Society of Economic Botany. Although then-current Museum policy required him to retire at the age of 65, he remained as curator emeritus for two more years, putting finishing touches on the *Flora of*

Guatemala while Terua compiled the comprehensive index to the complete set. Even after moving to Arkansas, Dr. Williams continued publishing botanical works until 1981.

Louis and Terua Williams were married in Jackson Hole, Wyoming, in 1934, when Louis was a graduate student (at Washington University in St. Louis) and worked summers as a ranger-naturalist in Grand Teton National Park. He had grown up on his family's Double Diamond Ranch near Jackson, and in his youth he met the outlaw Butch Cassidy, who was camped for a while, under an alias, on a nearby ranch. He was an athlete and outdoorsman; it was while trout fishing that he first encountered a plant collector, and this turned out to be Aven Nelson, the renowned Rocky Mountain botanist, who subsequently guided Williams's career and became a life-long friend.

The Williamses continued to enjoy nature in retirement. Their home, on the northwestern edge of the Arkansas Ozarks, nestles in a forest of oak, sour gum, hickory, and dogwood, with wildflowers, songbirds, and white-tailed deer all about. The couple returned to Jackson Hole in 1984 to renew their vows in the same chapel where they were married. This January, Terua was at his side when he died. They had been married more than 56 years.



Louis O. Williams in 1967, collecting in the rain forest along Rio Iparia in Amazonian Peru.

with them whenever we are studying, conserving, or exhibiting their treasures.

The Maori and museums

I am not one to shy away from my beliefs and responsibilities. When it came time for me to give my lecture in Wellington on Field Museum's Maori collection, I had decided to conclude what I had written beforehand with a few unrehearsed remarks on the issue of bringing taonga Maori held in overseas museums back to New Zealand.

At the end of my presentation, therefore, I asked a rhetorical question of the Maori in the audience: "Do the Maori have anything to teach the world?" I suggested that if they have nothing to teach the world, then it might be appropriate to bring back everything to New Zealand that is now held in overseas museums.

"But if you have something to teach the world, please don't bring all your taonga home and leave us only with a video tape."

Everyone in the audience, I think, understood what I was saying. First, museums teach people best through the medium of real objects, not with video tapes. Second, they also knew I was saying something else that was important, too. I was acknowledging that the Maori do have things to teach the world. And I was saying that museums are places where they can do the teaching that needs to be done about Maori life and custom, in the past and in the present.

These are not new ideas. But they are still fairly radical ideas, nonetheless. You see, people who work in museums have conventionally thought they should be the ones to decide what to exhibit and what to teach people about other people in the world.

It is still a radical notion to say that muse-



FMNH 84424.22

ums should ask those "other people" to help decide what should be exhibited and what should be taught.

In sum, the people in that lecture hall in Wellington, New Zealand, knew I was talking about museums sharing decision-making power with them. They knew I was talking about museums doing more than just consulting with native peoples. They knew I was saying they should be our partners in our continuing quest, as museums, to conserve, study, and exhibit the cultural treasures of the world.

The museum as a cultural theater

These ideas are still unconventional enough that all of us within and outside the walls of the world's museums still aren't entirely sure how to work successfully in such a partnership.

One possible way to think about what needs to be done is to imagine a museum such as Field Museum as a cultural theater.

Within such a museum, an exhibit would

be like a stage on which a cultural performance is given to the museum visitor. I suspect the most exciting "performances" on such a stage will prove to be those for which native peoples have served as "principal director" and "script writer." Museum curators would probably serve as their liaison with the museum as a working institution. Museum educators and museum designers would help with the incredibly difficult task of turning exhibit ideas and objectives into a workable performance. And museum collections would play the role of leading actors in the drama presented. Hence, when a performance required it, museums would have to borrow or collect

new, contemporary things — modern taonga, if you will — so that what is being presented to the museum visitor can be taught effectively.

This vision of the museum as a cultural theater is a challenging one. It may not always be easy for museums as institutions, and for museum employees as individuals, to share responsibility and power with native peoples.

But the rewards are likely to be great. If museums become cultural theaters, museums will be at the cutting edge of intercultural education. Thereby, museums will foster cultural understanding and respect among the world's many and varied peoples.

And how rich will be the rewards for museum visitors! By going to museums, you will have the astonishing, unparalleled opportunity to learn through the eyes and traditions of other peoples.

The ancestors are ever-present in Maori taonga. Here, delegates to the 1986 "Te Maori" closing ceremonies at Field Museum pay their respects to ancestors in Ruatēpupuke II.



**FIELD
MUSEUM
TOURS**

312/322-8862

SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01371 5388

*The thrill of
a lifetime ...*

*and inner
peace
beyond
imagining.*

Travel all 300 miles of the Colorado through the Grand Canyon by motorized raft, and marvel at the mile-high canyon walls.



Colorado River Rafting Adventure

Space is limited. The price of \$2,145 per person covers all expenses except meals in Las Vegas. Our naturalist guide will be Barbara Harney.

We'll sleep on sandy beaches under the stars, swim in the Colorado's tributaries, and hike to places of unusual geological and anthropological interest. We'll ride nearly 200 rapids, in complete safety—you don't even have to know how to swim!

**May 24 –
June 2, 1991**

Costa Rica Tropical Adventure

November 27 – December 8, 1991

A land of unparalleled diversity, with lowland jungles, high-altitude cloud forests, black-sand and coral beaches, mountainous paramos, volcanoes, and some of the most beautiful tropical white-water rivers to be found anywhere, all preserved by the most remarkable national park system in the world. We'll be accompanied throughout by Dr. William C. Burger, Field Museum's curator of vascular plants, and Dr. Julio Sanchez, chief curator of birds at the National Museum of Costa Rica. Dr. Burger, a specialist in the flora of Costa Rica, is also a highly skilled nature photographer and will share that expertise with tour members as well.

The group is limited to 20 participants. Price is \$3,350 per person, and includes round-trip air transportation from Chicago. A deposit of \$250 per person will hold your reservation.

**Please request information on
these 1991 tour programs:**

* Canadian Arctic and Greenland aboard
Renaissance, August 6-16, 1991

* Kenya I: August 31 - September 15.
* Kenya/Tanzania: September 14-29
* India (travel maharaja-style): October 25 -
November 13
* Thailand: November 8-24