IHO to Renew Darwin Exhibit

IHO has received official approval to re-vitalize an exhibit on the contributions of Charles Darwin and to launch a campaign to restore and preserve the home in which the father of evolutionary biology wrote his monumental works.

The new exhibit will replace one currently open to the public in Down House, Darwin’s home near the village of Downe in Kent, about 16 miles south of London, England.

Evolution

The exhibit will explain how Darwin came to understand evolution and will describe the impact of his concepts in light of the latest scientific thought and evidence, using human evolution as an example.

IHO Vice President Thomas Hill, who has worked with British officials to launch the effort and is spearheading IHO’s campaign to seek public and private support for the venture, was struck by the need to bring the Darwin exhibit up to date during a visit to Down House in 1979.

“Even I, as a non-scientist, recognized inaccuracies,” Hill said, “The exhibit had long since seen its prime.”

“Precarious Spot”

According to Hill, Down House is “in a precarious spot” and suffers from a perennial shortage of funds.

Unlike other important British monuments and buildings, which are operated under the National Trust, Darwin’s home falls, for historical reasons, under the jurisdiction of the Royal College of Surgeons of England. Hill approached this distinguished body with his ideas, and “they were incredibly receptive that someone wanted to take the time and effort to help,” Hill said. “From (continued back page, column 1)

Team to Explore Legendary Fossil Sites in Tanzania

Tanzania team members Gerald Eck, Prosper Ndessokia, and Robert Drake (l. to r.) make field notes at Olduvai.

The news in May from Dar-es-Salaam was beyond everyone’s dreams.

IHO had been invited to Tanzania to survey two legendary anthropological sites—Olduvai Gorge and Laetoli—and to inaugurate a multi-year venture that will focus on training Tanzanian scholars to manage this priceless natural heritage.

Month-long Visit

Director Donald Johanson and a research team arrived in the Tanzanian capital August 1 for a month-long visit that was to be crammed with lectures, meetings and exploration.

“We spent a lot of time telling everyone what we wanted to do and listening to what they thought we should do,” said IHO Scientific Associate Gerald Eck, anthropology professor at the University of Washington and co-director of the Tanzania project for IHO.

Warmth, Enthusiasm

Everywhere the team went, they were met with warmth, enthusiasm, and a high degree of expertise.

“I was impressed by the level (the Tanzanian scholars) have already achieved and by the potential for bigger and better things,” said team member Tim White, anthropology professor at the University of California, Berkeley.

After initial discussions, the researchers took off by Land Rover for Olduvai Gorge (continued page 2, column 1)
and Laetoli to spend the next two weeks familiarizing themselves with the terrain.

“We tried to see as much as we could in the time available in order to know what we will face in the future,” Eck said. “It’s one thing to read the literature and quite another to walk on the ground.”

And walk they did, moving inch by inch over the site, consulting a classic monograph on the geology of the gorge and comparing the information to what they were seeing.

Under the researchers’ gaze, the brick red soil of Olduvai yielded up part of a rare monkey skull, the complete skull of an ancient rhinoceros, an elephant’s jaw, and numerous other fossil finds, confirming their belief that a systematic management program is urgently needed if these and other specimens are to be preserved.

**Joint Research Venture Begins... With a Monkey**

It all began with a rare monkey skull that a Tanzanian student had brought to the United States for study.

When Scientific Associate Gerald Eck, on sabbatical leave at IHO last year, heard that the fossil skull was nearby at the University of California, Berkeley, he could hardly wait to make contact.

Eck, associate professor of anthropology at the University of Washington, is the world’s expert on the extinct species of which the skull was an example.

The student, a soft-spoken scholar working on his doctorate in vertebrate paleontology at Berkeley, was happy to have Eck take a look at the monkey, and, learning that Eck was studying monkey fossils from Ethiopia at IHO, he asked if he might see them.

So it was that Prosper Ndessokia, on study leave from his position as conservator of antiquities in the Tanzanian Department of Antiquities, began an association with IHO that has developed into the most exciting collaborative research venture the Institute has yet undertaken.

One day Ndessokia asked Eck when he would be going into the field again to look for new specimens.

Eck shook his head. Political instability and the tragedy of famine seemed to preclude the possibility of work in Africa, even though field work there was critical for research advances.

**Plans**

Had Eck considered Tanzania?

**Tanzania? Site of the major discoveries of famed anthropologists Louis and Mary Leakey! Why, Eck had never seriously entertained the idea. In paleoanthropology, protocol over research turf is a delicate matter. Even though Mary Leakey was no longer working in Tanzania, Eck had assumed it would be difficult to get permission.**

Ndessokia offered to broach the subject with the Tanzania Scientific Research Council and the Department of Antiquities.

Eck alerted IHO Director Donald Johanson, and the researchers waited for the first sign of a response.

Back came strong encouragement to apply formally for permission to work at Olduvai Gorge, the multi-hued canyon etched into Tanzania’s golden Serengeti plain where, in 1959, Mary Leakey found “Zinj,” the first prehuman fossil skull ever to be discovered in East Africa.

“We spent the next six weeks preparing a proposal and putting our scientific team together,” Eck recalls.

Five weeks elapsed. Then, the day before Ndessokia was scheduled to return to Tanzania for the summer, a permit arrived. The research team would be able to survey both Olduvai Gorge and Laetoli.

“Usually these things are good for a year,” Eck said, “but, to our astonishment, the permit covered 2¹/₂ years—three summers’ work. We were elated!”

The Institute has submitted a grant proposal to the National Science Foundation for three years of research in Tanzania and will be seeking additional support for the venture from private and public sources. An estimated $200,000 per year will be needed.

Costs for the inaugural visit to Tanzania were underwritten by IHO Board Members Gordon Getty and David Koch.
How did our earliest ancestors live? Were they hunters, scavengers, prey? When did they begin to use stone tools, a watershed step in human evolution?

Two IHO archeologists are searching for clues to these and other tantalizing mysteries of the prehistoric past, and they think they have a lot to learn—from the marks on bones.

Patterns

Staff Archeologist Nick Toth and Research Associate Kathy Schick analyze minute nicks and grooves on animal bones, searching for characteristic patterns.

By identifying the "signatures" that modern-day meat-eating animals leave on the bones they chew, Toth and Schick hope to have a basis for comparison with prehistoric fossils.

Their investigation ranges from observing the chewing behavior of lions, tigers, jackals, porcupines and other zoo animals to studying bone damage patterns under sophisticated electron microscopes.

Last spring, they took their quest to the eastern desert of Jordan, where, with Jordanian scientists, they recovered more than 4000 bones from an abandoned den inhabited about 100 years ago by powerful striped hyenas.

Not much is known about the behavior of these "consummate bone crunchers," as Toth calls them, but their prehistoric ancestors are believed to have been responsible for much of the bone accumulation at fossil sites where early humans and prehumans lived.

Toth and Schick will analyze the bones they gathered from the sun-baked desert around the hyena den to develop a clear picture of the scavenger's handiwork.

Armed with their analyses, Toth and Schick plan eventually to visit fossil sites in Africa, where early human and prehuman remains have been found. There, they hope to differentiate between fossil bones chewed by ancient scavengers like the hyena and those with other markings, perhaps made by ancestral hunters, as some have theorized, or by prehistoric butchers using the first stone tools.

"The more we see of natural evidence, such as the bones chewed by the hyenas, the better we will be able to interpret markings from the past," Toth explained.

Over a Dozen Species

Toth and Schick have cleaned and organized the remains of over a dozen species of animals which they recovered from the hyena den. Now, the two archeologists are analyzing the bones to learn in more detail what animals were eaten, what parts of the animals accumulated, and how the bones were modified.

They will supplement this research by simulating the effects of natural forces—fire, for example—on animal remains.

Toth, who is an expert at making stone tools identical to those found at prehistoric archeological sites, will also analyze the patterns he creates by using stone implements on bone. He will compare his markings with damage patterns on fossil bones.

The husband and wife team hopes that, by illuminating the forces at work in prehistoric times, their research will lead to a better understanding of the "process of becoming human."

Principal funding for Toth and Schick's hyena study has been provided by the L. S. B. Leakey Foundation. The researchers carry out their electron microscopy at the University of California, Berkeley.

Omission: The front page picture of IHO President William Kimbel in the Spring/Summer 1985 issue of the newsletter should have been credited © David L. Brill 1985. We regret the omission. □
Board Considers
Four Year Plan

The Board of Directors is considering a four-year plan for IHO which addresses the goals of the Institute and describes projects to be undertaken in light of these goals. Here is a summary:

**Interdisciplinary Field And Laboratory Research:**

The Institute's primary goal is the recovery and interpretation of ancient fossil traces of the human lineage, through field studies carried out in collaboration with scientists around the world. Example: the newly launched collaborative venture in Tanzania (see stories, pages 1, 2, 7) and further research pending in Ethiopia.

Fossil preparation and casting, archeological and paleontological laboratory research, and dating of specimens. With work on the laboratories for these activities now in the final stages, the Institute will be unique in having all five vital areas under one roof for use by its staff and visiting scholars.

**Support and Training Of African Scientists:**

IHO is firmly committed to the advancement of paleoanthropology in African countries and to providing these nations with the tools and expertise they need to manage their own scientific resources. The Institute currently is helping to support the doctoral work of a Tanzanian student at the University of California, Berkeley, and recently funded and participated in a six-month training program in the United States for a technician from the National Museum of Ethiopia. Plans call for expanding this program.

**Scientific Outreach:**

The Institute provides a unique, interdisciplinary environment in which scholars on leave from their regular academic programs can carry out field and laboratory research in conjunction with IHO scientists. Plans call for establishing a fellowship program to provide support for selected researchers to work for one or more academic terms at IHO.

The Institute also plans to inaugurate scientific symposia to address critical issues in the human origins field.

**Public Education:**

Public education is a key aspect of IHO's mission. The opportunity to revise the evolution exhibit in Charles Darwin's home (see story page 1) is a prime vehicle for educating a broad public about Darwin's ideas and their ramifications for understanding our own origins.

Plans are also underway for establishing a Media Center at IHO to house the Institute's extensive book, journal, film, and slide libraries. A vital component of the Media Center will be a multi-user computer system which will access information and bibliographies on human evolution and fossil specimens.

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Kimbel to Discuss
How Paleontologists
"Flesh Out the Bones"

IHO President William Kimbel will describe the methods paleontologists use to answer questions about the fossils they find, Monday, November 18th, at 8 p.m. at the Institute of Human Origins in Berkeley.

Concluding the Institute's 1985 fall lecture series, Kimbel will draw from his recent experience reconstructing a 3-million-year-old prehuman fossil skull to describe how researchers infer function and evolutionary significance from skeletal remains.

The lecture is open to the public. Tickets at $4 may be purchased at the door, but reservations are strongly advised. Proceeds from the lecture help support scholarships for African students.
“On the Threshold”

McManigal: “The Institute’s franchise is the world.” Photo: David Smeltzer © Institute of Human Origins 1985.

“IHO scientists do their work in a world which is unable to support the very labors its heritage calls for,” McManigal said. “In order for us to perform the tasks that are inviting us, we need help from those with the power to commit funds and the willingness to support the endeavor.”

McManigal said his first priority as development chair is to seek major gifts to support fellowships, community outreach, capital needs, and African installations and training.

Early Stone Tool-Makers Used Right Hand More, Archeologist Finds

Our early humanlike ancestors tended to be born right-handed, Staff Archeologist Nick Toth has concluded.

In a paper just being published by the JOURNAL OF HUMAN EVOLUTION, Toth argues that, as early as two million years ago, prehumans were preferentially right-handed.

Modern Humans

Preferential handedness—that is, a genetically-based predisposition to use one hand rather than another—is a trait found only in modern humans and is associated with a brain composed of two hemispheres, each specialized to perform different functions.

Toth, an expert in Early Stone Age technology, bases his findings on a comparison of prehistoric stone artifacts with the results of long-term experiments he has performed in which he has made tools out of stone.

His analysis is the first ever to present criteria for documenting preferential handedness in the prehistoric record.

Toth analyzed the physical characteristics of stone flakes (sharp stone pieces chipped from a larger stone) and cores (stones from which flakes have been struck) at early stone age sites and found distinctive patterns.

In Memoriam

The Board of Directors and the staff of the Institute were saddened to learn of the death on October 5 of Professor Glynn Isaac of Harvard University.

Professor Isaac will be remembered as a leader in the development of African paleolithic archeology through both his seminal research and his dedicated teaching.

Koobi Fora

Toth compared his experimental work to the patterns he found in archeological evidence from Koobi Fora in Kenya and Ambrosia, Spain, and concluded that, consistent with his work, ancient tool-makers had preferentially rotated cores in a clockwise direction.

His findings suggest that there was a genetic basis for right-handedness among prehumans by 1.4 to 1.9 million years ago and that their brain hemispheres may have already become more specialized for different functions, such as language and spatial perception.
Geography Makes East Africa Vital

Why is returning to East Africa for field work so critical to the study of human origins?

A good part of the answer lies in the region's geography.

East Africa has been likened to a piece of clay which is being pulled apart from opposite sides and is ripping down the middle.

Over the millenia, as the earth's crust has been torn asunder in the region, valleys have formed and lakes have appeared. Sediment from hills and rivers feeding the lakes has washed into the lake beds, trapping evidence of early life forms.

As the earth continues to move, lakes dry up, valleys grow wider, and water cuts steeper and steeper canyons through old layers of soil and sediment, exposing the remains of flora and fauna long disappeared.

The water, in addition, contains minerals that help turn bone to stone, preserving specimens and further enhancing our view of the past.

Since anthropological evidence indicates that our prehuman ancestors seemed to be confined to Africa until about one million years ago, the East African Rift System, with its unique capacity to conserve and expose evidence from a distant era, offers incomparable pathways of discovery for scientific inquiry.

Lucy, Walking!

An April trip to the magical Galapagos Islands is next in the series of IHO-sponsored discovery tours which illuminate the history and science of evolution on our planet.

The tour, which will be led by IHO President William Kimbel, will include exploration of the art, history, and archeology of Quito, Ecuador, and a six-day voyage through the Galapagos archipelago accompanied by local naturalists.

Evening Lectures

Kimbel will present evening lectures explaining how Charles Darwin's observations of the unusual plant and animal life he found in the Galapagos Islands 150 years ago inspired the theories that have forever altered our vision and understanding of human origins.

Cost of the Galapagos tour, which is open to IHO members and friends, is $3,444 per person, based on shared accommodations. The tour fee includes a $200 tax deductible donation to the Institute.

The voyage departs from Miami, Florida April 26 and returns May 7. For a brochure providing a complete description of the tour and a reservation form, call IHO at (415) 845-0333. Space on the tour is limited to 10 participants.

New Logo

INSTITUTE OF HUMAN ORIGINS

Introducing our new logo, designed for IHO by Kevin O'Farrell—Concepts. You will be seeing more of this trio on Institute brochures and in future issues of the newsletter. We hope you will agree that they are a powerful symbol of what we're all about. Watch for them!
**Director's Report: Tanzania**

I want to share with you my tremendous excitement at the opportunity to work in Tanzania and to explore Olduvai Gorge and Laetoli, two classic sites, each very different, which have already enormously expanded our understanding of human origins.

People have asked me why we want to work at Olduvai and Laetoli, in light of the extensive work pioneered there by the late Louis Leakey and continued with great dedication until 1982 by Mary Leakey and others.

We want to go back to Olduvai and Laetoli to seek answers to new questions in paleoanthropology and archeology.

Olduvai is a tiny gash in the Serengeti plain in a country more than twice the size of California. But it is a precious window on a time and a place in which our ancestors may have begun to manipulate their world in new ways.

At Olduvai, we find evidence both of our early human forebears and of stone tools. Can we see in this association of bone and stone the dawn of culture, the first sign of technological know-how, changing food sources, and behavioral patterns that set us apart from other animals?

The scientific community disagrees on the extent to which connections can be made and inferences drawn about what our ancestors were doing at Olduvai almost two million years ago. But we agree that we need to do more systematic and extensive excavation to get at the answers.

By returning to Olduvai to take a fresh look at the fossil beds and artifacts there in conjunction with new exploration, we will be better able to address questions like: Were our early ancestors hunting their food, bringing it back, sharing the kill? Or were they scavengers, content to collect the remains of animals killed by other animals?

In conjunction with these studies, we hope to be able to refine our dates for the younger parts of the gorge, which will help us to calibrate the evolution of the animals found there. We also want to study climatic changes and ecological preferences which may help to illuminate why our species persevered while other prehuman ancestors disappeared.

Two hours away, Laetoli, which is nearly two million years older than Olduvai, preserved something that most paleoanthropologists would never have even fantasized could be found: the famous 3.5 million-year-old footprints which give us evidence about the soft anatomy of our prehuman ancestors and testify to their ability to walk upright.

Laetoli will provide an important contrast with Olduvai and make it possible for us to gain additional insight into those tantalizing traces left from the past.

The Tanzanian scholars who have joined us in this captivating new venture will become the seekers and the guardians of their country's priceless anthropological heritage. We are extremely grateful to have been welcomed to Tanzania and encouraged to work with them.

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**MEMBERSHIP APPLICATION**

**PRIVILEGES OF IHO MEMBERSHIP**

All CONTRIBUTORS receive the Newsletter and special announcements of Institute activities.

**Full Members: (Check One)**
- □ “Lucy: The Beginnings of Humankind” by D. Johanson and M. Edey (paperback)
- □ IHO Tote Bag

**Sponsors: (Check One)**
- □ Set of color slides of field and laboratory work on prehumans.
- □ Tape of Dr. Johanson's lecture: "Our African Ancestors: 4 Million Years of Controversy"

**Patrons and Founding Associates**

receive additionally a fossil replica and are invited to meet Institute scientists.

Please make checks payable to: INSTITUTE OF HUMAN ORIGINS.

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Darwin Exhibit... Continued

(continued from page 1)

IHO's perspective, the project fulfills our goal to communicate information to the scientific community and the general public about the study of evolution and human origins."

Early this fall, the effort got a boost on both sides of the Atlantic when George Darwin, one of the last of the Darwin family line, gave the project his blessings and Darwin scholar Ernst Mayr of Harvard University agreed to join IHO's scientific advisory committee for the project.

Hill estimates that it will take a year or less to create a "world class state-of-the-science" exhibit on evolution at Down House, once the funding for the project is identified. He said $100,000 is needed.

In addition, IHO will raise funds to repair and freshen up Down House and will seek a major contribution to serve as seed money for an endowment fund to preserve Down House.

IHO President William Kimbel is heading the scientific team which is developing the content of the Down House exhibit, in cooperation with Darwin scholars, the Royal College of Surgeons of England, and others. A London design firm will be engaged to create the exhibit.

Kimbel and IHO Director Donald Johanson will introduce the Darwin project to American audiences this month in a presentation on Darwin to the English Speaking Union in San Francisco. □

The New Study at Down House where Darwin worked. Photo: Thomas Hill.

At the Institute

- William Kimbel, who joined the Institute of Human Origins last spring as assistant director, has been named its president. Kimbel's new title reflects his expanded responsibility for the day-to-day operations of IHO. He will retain the title of assistant director as regards the research activities of the Institute.
- Larry Marshall has become the assistant director of the Berkeley Geochronology Center at IHO. Marshall, whose specialty is the paleontology of South American mammals, comes to the Center from the University of Arizona, Tucson.
- Susan Betancourt is IHO's new business manager and executive secretary to Director Donald Johanson. Betancourt manages the IHO office, supervises clerical staff, and handles accounting for the Institute. □