PROSPECTUS

TURKANA BASIN INSTITUTE

Richard Leakey, Chair

STONY BROOK UNIVERSITY

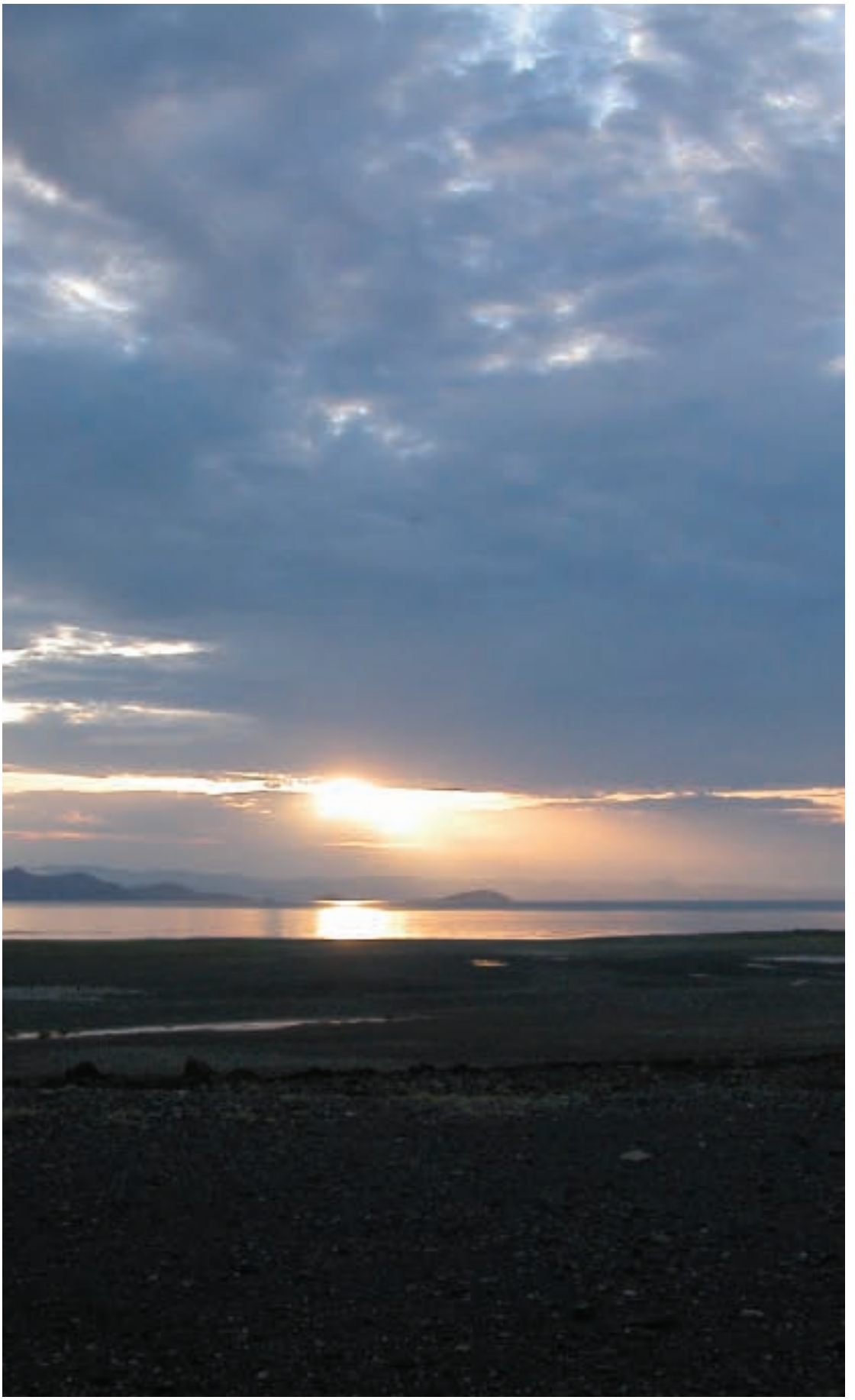
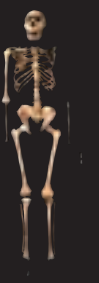
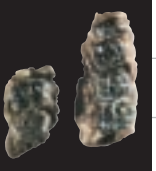


PHOTO: MEAVE LEAKEY

Lake Turkana is a place of vast panoramas and vast potential for research on human origins.

A NEW AND EXCITING RESEARCH PROGRAM, WHICH ADDRESSES THE ENTIRE SPAN OF HUMAN EVOLUTION, IS PLANNED IN THE OMO-TURKANA BASIN OF NORTHERN KENYA AND SOUTHERN ETHIOPIA. EXTENDING BACK IN TIME FROM MODERN HUMANS: THROUGH THE FIRST PASTORALISTS AND POTTERY MAKERS; THE EARLIEST MEMBERS OF OUR SPECIES, *HOMO SAPIENS*; EARLY DIVERSITY IN THE GENUS *HOMO;* AND BACK TO OUR EARLIEST ANCESTORS, THE GEOLOGICAL DEPOSITS IN THIS LARGE LAKE BASIN SPAN AN EXCEPTIONALLY LONG STRETCH OF TIME. OLDER SEDIMENTS EXTEND THIS RECORD EVEN FURTHER BACK TO THE ORIGIN OF MONKEYS AND APES, INCLUDING THE EARLIEST KNOWN APES, AND, EVEN TO A TIME UNKNOWN ELSEWHERE IN AFRICA, WHEN DINOSAURS DOMINATED THE FAUNA. RESEARCH IN THE TURKANA BASIN OVER THE LAST 40 YEARS HAS LED TO INTERNATIONAL RECOGNITION OF ITS SIGNIFICANT CONTRIBUTIONS TO THE STORY OF HUMAN EVOLUTION. BEAUTIFULLY PRESERVED FOSSIL SKULLS AND SKELETONS OF HUMAN ANCESTORS, AND AN EXCEPTIONAL ARCHAEOLOGICAL RECORD, HAVE GIVEN MODERN HUMANS A PREVIOUSLY UNDREAMT OF UNDERSTANDING OF OUR PAST.

ARTIFACTS		SITES
	HOLOCENE	
Bone harpoons		*Kibish IV — 10 kya*
Early pottery		*Jarigole — 10 kya - 4 kya*
	PLEISTOCENE	
Earliest Homo sapiens		*Kibish — 195 kya*
Homo heidelbergensis		*Eliye Springs — 300 - 150 kya*
Rich fossil fauna and archaeological sites		*Omo Shungura Fm — 1.8 - 1.05 mya* *Koobi Fora Fm — 1.8 - 0.7 mya*
"Turkana Boy" Homo erectus *skeleton*		*Nachukui Fm — 1.8 - 0.98 mya*
	PLIOCENE	
Paranthropus aethiopicus *"Black Skull"*		*Nachukui Fm — 4.1 - 1.8 mya*
Kenyanthropus platyops		
Early fossil hominins and archaeological sites		*Koobi Fora Fm — 4.2 - 1.8 mya* *Fejej & Shungura Fm — 4.0 - 1.8 mya*
Australopithecus anamensis		*Kanapoi — 4.1 mya*
	LATE MIOCENE	
Abundant mammalian fauna including early hominids		*Lothagam — 8 - 3.5 mya*
	EARLY MIOCENE	
Abundant apes and earliest monkeys		*Kalodirr — 17 mya* *Buluk — 17 - 18 mya*
	OLIGOCENE	
Earliest fossil ape		*Loperot — 27 - 17 mya* *Lothodok — 27 mya*
Unexplored fossil bone beds		*Lokone Hill — 30 mya*
	CRETACEOUS	
Dinosaur		*Labur Range — 165 - 95 mya*


Kibish
Shungura Fm
ETHIOPIA
Labur Range
Fejej
Buluk
NACHUKUI FORMATION
KOOBI FORA FORMATION
LAKE TURKANA
Jarigole
Lothodok and Kalodirr
Eliye Springs
KENYA
Lodwar
Lothagam
Lokone Hill
Loperot
Kanapoi

The Vision

Skulls of two very different fossil apes from a 17-million-year-old site, Kalodirr, to the west of Lake Turkana. Each of these represents a new genus and species unknown elsewhere.

Nearly four decades of research have resulted in a good understanding of the lake basin's geological history and the distribution and age of the extensive exposures. Thus significant research programs can be built on this knowledge. Sediments from the last 10,000 years are particularly well exposed at Turkana but to date this important phase of human evolution has been little investigated. Until recent times, a waterway directly connected the Lake Turkana Basin to the civilizations in the Upper Nile and the Sudan. It is therefore likely that excavations of the extensive Turkana Holocene sites will provide evidence of links with these cultures and may even show that the origins of the ancient Egyptian cultures came as much from Africa as from further north. The last 10,000 years are critical in disclosing these links.

Until now, research in the Turkana Basin has largely been led by Europeans and Americans who have access to substantial governmental funding. Limited access to research funds, as well as scarce research opportunities in government institutions has, until now, presented a major deterrent to Africans who wish to continue Africa-based research in paleontology and paleoanthropology. This new initiative will provide the opportunity to involve indigenous Africans as key members and leaders of the research efforts. Through private funding, they will have the ability to develop a career in this field, based in their home continent, but with strong links to academic institutions in the rest of the world. If associated with the Turkana Basin Institute, international funding (such as from the National Science Foundation) will become accessible.

In addition, this initiative will provide financial and material benefits to the local communities. At present, all the recovered fossils and artifacts are taken to a central institution in Kenya's capital city, where local communities have minimal participation in the research activities. The creation of permanent research stations will result in the direct involvement of local people, and will generate sustainable employment opportunities as well as improved local infrastructure. These activities and benefits will increase appreciation of their natural heritage and will give a better understanding of the importance of these research activities in the international arena.

Stony Brook University has a long tradition of involvement and initiatives in human evolution. As the academic center of the Institute, Stony Brook will ensure sustainability of the Turkana Basin Institute and the future of its research programs. The Institute will provide opportunities for field training for both African and American students that will stimulate further research and educational programs being developed using the Internet.

The potential of this initiative is enormous. It will undoubtedly generate and disseminate new and unsuspected discoveries about the human past that will both astonish us and revolutionize the way we understand ourselves.

Finding fossils requires trained eyes and experience. This fossil jaw with teeth of an early hominid blends in with the surrounding rocks, but is made visible when the photograph has been manipulated to reveal what the skilled researcher sees.

The reconstructed skeleton, skull, and brain cast of the 1.6-million-year-old Turkana Boy, discovered on the west side of Lake Turkana. This is one of the most important fossil discoveries made at Turkana so far, and demonstrates the enormous value of more complete specimens.

PHOTOS: © ALAN WALKER; OPPOSITE, CLOCKWISE FROM TOP LEFT: © ALAN WALKER; ANN SU; MIKE GETTY

The Plan

Current field research in paleoanthropology is generally carried out by individually funded short-term expeditions that waste time, effort, and expense in setting up, closing down, and transporting equipment. The Turkana Basin Institute will establish two or three fully equipped research centers over the next nine years that will serve as bases from which researchers can operate, store equipment, and hire well-trained professional field workers on a year-round basis. The first of these centers will be constructed on the east side of the lake and will include housing for researchers and guests, dormitories for students, dining facilities, laboratories and storage facilities, classrooms, and telecommunications. A second similar center will be constructed on the west side of the lake, and eventually a third facility is planned in the Omo valley of Ethiopia to the north.

With research and laboratory facilities on site, the active survey, discovery, and collection of fossils and artifacts will increase from the current 10 weeks to as much as 10 months a year. In this way, the discoveries accruing from field research will be dramatically increased. The laboratories

Top: The site of the Turkana Boy excavation. Bottom: Stony Brook graduate student Joe Sertich and Kenyan undergraduate student Caroline Mukiri with a newly discovered dinosaur bone from West Turkana. Right: Kenyan and American students excavating a fossil in the Koobi Fora formation.

for storage, preparation, and curation of fossils will provide space and security for the specimens, which is increasingly lacking in larger centralized museums in Africa. A major component of the Institute will be Web-based availability of information. This will include readily accessible digital archives of the collections, field dispatches, and Web sites. The Institute will also offer educational components including online courses in many languages that can be taken for academic credit to service a variety of worldwide educational institutions. The Institute will act as an up-to-date resource for information about all aspects of human evolution.

The Board of Trustees

A board of trustees appointed by Stony Brook University president Shirley Strum Kenny will oversee the activities and welfare of the Institute. The board will consist of major donors, *ex-officio* members who will include the president of Stony Brook University, the provost, and the director of the Turkana Basin Institute. Dr. Richard Leakey will serve as chair.

Richard Leakey and Paul Abel in 1967 examining what is now known to be the oldest record of Homo sapiens *yet found (195,000 years). Currently a team from Stony Brook is working at this site.*

PHOTOS: © BOB CAMPBELL

Stony Brook University

Stony Brook University will serve as the academic base affiliated with the Turkana Basin Institute. It will provide facilities and support for lecture series, symposia, outreach, and fundraising activities; an academic home for graduate and postdoctoral students from both America and Africa; and Internet library access for the research centers at Turkana.

A lower jaw and two fragments of a shin bone of what is now recognized as the oldest and most primitive of the Australopithecus *species. These were discovered at Kanapoi, dated at 4.1 million years, on the west side of the lake.*

For nearly three decades Stony Brook has been an international center of excellence in research and training in paleontology and paleo-anthropology, specifically in the areas of primate and human evolution. Stony Brook faculty have research programs all over the world and are repeatedly recognized as international leaders in the field. The Inter-departmental Doctoral Program in Anthropological Sciences, which draws faculty from many departments on campus, including Anatomical Sciences, Anthropology, Ecology and Evolution, and Geosciences, has been recognized as the premier program in the country based on faculty scholarly productivity in several studies during the past decade. The program has placed its graduates in the best postdoctoral and faculty positions in the world.

With the addition of Drs. Richard, Meave, and Louise Leakey to the Stony Brook faculty, and the establishment of the Turkana Basin Institute, there is now an extraordinary opportunity to integrate Stony Brook's strengths in academic research and education with the Leakeys' renowned experience and history of field research in East Africa.

Stony Brook University Distinguished Professor John Fleagle is the director of the Turkana Basin Institute. He will coordinate Turkana Basin Institute activities at Stony Brook, including recruitment, hiring, and evaluation of Institute faculty and postdoctoral researchers; development of facilities; and responsibility for communicating the Institute's fundraising priorities. Subsequent directors of the Turkana Basin Institute will be appointed by the president of Stony Brook University in consultation with the Institute's board of trustees.

The Stony Brook Foundation will receive all contributions for the Turkana Basin Institute. Established in 1965 as the sole official fundraising and private gift-receiving agency for Stony Brook University, the Foundation is a 501(c)(3) not-for-profit corporation. All contributions to the Institute are tax deductible to the fullest extent allowed by law.

The Leakey Team

Dr. Richard Leakey will serve as the overall project and construction manager of the Turkana Basin Institute. Dr. Meave Leakey will serve as the field director, coordinating research activities and the development of the facilities. Dr. Louise Leakey will serve as the educational programs director, and will plan, develop, and operate educational programs in the field and develop Internet-based courses.

Turkana Basin Institute, Ltd.

Top: Meave Leakey uncovers a specimen. Bottom: Kenyanthropus platyops *is the best evidence we have of at least two species of human ancestors in existence at 3.5 million years. This find was made on the west side of the lake.*

The Turkana Basin Institute, Ltd. is registered as a Kenyan entity that will act as the subcontractor for the Stony Brook Foundation and for Stony Brook University. Members of the Board include Drs. Richard, Meave, and Louise Leakey; Karega-Munene (U.S. International University, Nairobi); Simuyu Wandibba (Professor, Nairobi University); John Fleagle (Stony Brook University, Director of the Turkana Basin Institute); and Lawrence Martin (Dean of the Graduate School, Associate Provost for Analysis and Planning, and Professor of Anthropology and of Anatomical Sciences).

Additional Partners

The Turkana Basin Institute, although primarily based in Turkana and Stony Brook, will be affiliated with a number of other institutions. They will provide additional training and research facilities, research collaborations, and personnel, which will make the Institute a home to study abroad opportunities for students across the world. These institutions will include:

- *The University of Utah, which has a long history of research in the Turkana Basin and collaboration with both the Leakey family and Stony Brook faculty. In addition, the University of Utah has an impressive record of training African geologists.*
- *The University of London, whose researchers are actively involved in human evolution research in the Turkana Basin.*
- *Addis Ababa University in Ethiopia, which has an excellent faculty in biology and a geology faculty with interests in paleontological and geological research in the Ethiopian part of the Turkana Basin.*
- *The U.S. International University in Nairobi, which has a collaborative agreement with Stony Brook University that will be expanded as the Turkana Basin Institute develops.*
- *The National Geographic Society, with which the Institute will develop a Web-based Human Origins portal that will become a primary source of information for anyone interested in human evolution.*

Major Milestones

- *$1.6 million of the required $2.4 million has been raised for Phase I.*
- *Stony Brook University has dedicated $1.4 million for faculty lines and student fellowships.*
- *Key new Turkana Basin Institute faculty have been hired.*
- *Institute space has been dedicated at Stony Brook University.*

- *Three graduate students have been awarded Turkana Basin Institute Fellowships, commencing Fall 2006.*
- *Five Turkana Basin Institute Summer Fellowships were granted in June 2006; the students conducted research projects in Turkana in Summer 2006.*
- *Identification of the locations for the Turkana Basin Institute sites at East and West Turkana.*
- *A site on the eastern shores of the lake has been identified with a potential water source and the location for the building. Architectural drawings are in the final stage, and construction is set to begin shortly.*

Timetable
Phase I: Initial Capital Projects and Academic Programs
(January 1, 2006 – December 31, 2007)

- *Complete construction of the first of the field station in East Turkana.*
- *Obtain vehicles for research activities and construction.*
- *Develop Web portal for outreach education on human evolution in conjunction with the National Geographic Society.*
- *Develop Institute Web page with interactive components.*
- *Institute Webcast of Stony Brook Human Evolution Workshop with commentary in multiple languages.*
- *Initiate plans for field school in Turkana Basin.*
- *Plan for construction of major field station in West Turkana.*

Phase II: Further Educational and Capital Expansion
(January 1, 2008 – December 31, 2010)

- *Finalize construction and equipping of the second field station.*
- *Begin construction on third field station in southern Ethiopia.*
- *Expand Internet activities to include live reporting from field stations.*
- *Establish field schools in Turkana Basin.*
- *Develop Web course offerings in paleoanthropology.*
- *Develop annual Turkana Basin Symposium.*

Above, a piece of rock that was deliberately flaked and broken by an early human 2.3 million years ago to obtain sharp cutting edges. The place where the flakes were broken off was found in an excavation and all the pieces were painstakingly fitted back together to form the original rock. Archaeologists can learn a great deal about the technological capabilities of our ancestors from this discovery.

A bone harpoon, above, and fragments of early pottery, below, come from the Holocene deposits to the east of the lake and are between 10,000 and 4,000 years old.

Phase III: Ensuring the Legacy of the Turkana Basin Institute

(January 1, 2011 – December 31, 2015)

- *Complete equipping and staffing of all field centers.*
- *Provide Web-based college courses in African paleontology and prehistory in multiple languages.*
- *Expand public outreach programs throughout the world with seminar series and symposia.*

Financial Projections

Phase I capital projects, program development, and personnel expenses are estimated at $3,725,000. Stony Brook University has dedicated $1.4 million in faculty salaries, student fellowships, and administrative expenses. To date, $1.6 million of the $2.4 million needed for Phase I has been raised from external private sources.

Phases II and III are projected at $5 million each. Stony Brook University has pledged to continue internal funding at comparable levels to its Phase I investment. An endowment of approximately $30 million or more will ensure at least $1.5 million for yearly operation and research funding.

Information

For more information,
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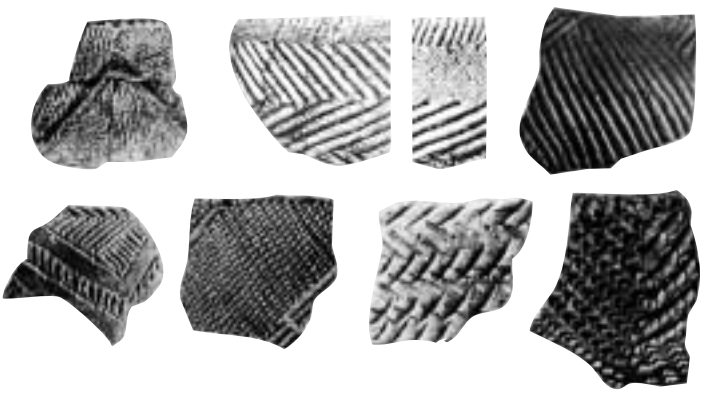

PHOTOS: MEAVE LEAKEY (HARPOON); CHARLES NELSON (POTTERY); OPPOSITE: © BOB CAMPBELL

The Omo River in southern Ethiopia has yielded the earliest fossil evidence of our own species, Homo sapiens*, as well as remains of many earlier human ancestors.*

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