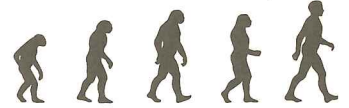


AnthroQuest



The Newsletter of the L.S.B Leakey Foundation

No. 1, Fall 1996

Cultured Chimpanzees

By Dr. Alexander Harcourt

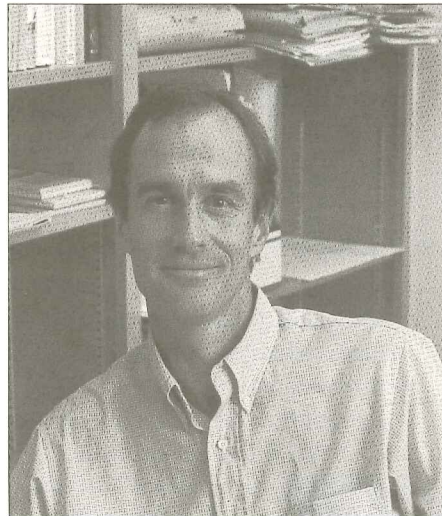
Note: Names in boldface type denote people or projects who have received funding from the Leakey Foundation.

The French eat frogs; the British eat marmite; Americans eat peanut butter. Are these "cultural" differences? Yes, if they are learned and passed on through the generations. Differences in diet are a trivial example of culture, but not necessarily trivial in themselves.

Katherine Milton of the University of California at Berkeley has suggested that other peoples' eating habits are frequently a key way for us to define the people themselves as disgusting, and thus to categorize them as potential enemies.

If small differences in diet can contribute to defining human cultures, it becomes interesting to ask about culture in animals, since it is also common for different populations to have different diets. Chimpanzees are a striking example. The oil palm nut has an extremely hard shell, too hard to crack by biting, but a gloriously rich kernel. Chimpanzees in West Africa use stone hammers and anvils to crack palm nuts, but no other African chimps engage in this activity. The chimpanzees of **Gombe**, and at **Mahale**, use sticks to "fish" for termites, but Ugandan chimps ignore termite mounds. Chimpanzees of the **Täi Forest** favor adult red colobus monkeys as prey, whereas those in Gombe prefer immatures, especially infants.

How do we explain these differences? Genes probably do not provide the answer. Not only is it difficult to conceive of the sort of gene that might trigger a chimp to prefer infant to adult



Dr. Harcourt is a Professor of Anthropology at the University of California, Davis. He has been associated with the Leakey Foundation since 1990 and has served as a member of the Scientific Executive Committee for the past three years. His current research interests include the evolutionary biology of reproduction and primate biogeography.

colobus meat, but research findings make that possibility seem unlikely as well. Thanks to the work of Harvard University's **Tony Goldberg**, we now know that, despite the expansive territory that separates many East African common chimpanzee populations, there are extraordinarily few genetic differences among them. Other possible explanations are explored in the recent book *Chimpanzee Cultures*¹.

Täi and Gombe chimps differ in more ways than just the age of the meat that they prefer. Täi chimps tend to hunt in groups, whereas Gombe chimps hunt alone. **Christophe** and **Hedwige Boesch** of the University of Basel have figured out why. The Täi

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¹ Edited by Richard Wrangham, William McGrew, Frans DeWaal and Paul Heltne, and published in 1994 by Harvard University Press.

Notes from the Field: How Do Baboons Forage?

By Sharon T. Pochon

Optimal foraging models focus research attention on the decisions foraging animals must make all the time: where to look for food, whether to stop and eat one food or keep looking for something better, and how long to spend searching for food each day. Getting food is a central problem for all animals, so evolution favors those that make better foraging decisions. If we can understand the foraging strategies of savannah dwelling terrestrial nonhuman primates, we can compare them with the strategies of human foragers living in similar environments to discover some of the similarities and differences that played a role in human evolution.

*Sharon T. Pochon, a doctoral student at the University of New Mexico under the supervision of Dr. Jane B. Lancaster, was awarded funds to aid field research on the foraging behavior of adult male yellow baboons (*Papio c. cynocephalus*) in Ruaha National Park, Tanzania. By developing and testing models of food selection, Pochon's goal is to find out whether baboons remember food source locations and act on that knowledge. This innovative study of a complex omnivorous primate's feeding behavior may teach us about the foraging tactics of extinct species.*

I habituated troops of yellow baboons for my study by following them on foot over many weeks. So far, I have habituated a total of four troops. I locate each troop while they are in their sleeping trees either in the morning or in the evening. A troop consists of between 60 and 80 individuals. Over half of the troop are juveniles and approximately 25 percent are adult females. At the beginning of the project, the first troop I habituated contained 10 or 12 adult males. Since then, the number of adult males has dwindled to only seven. Ideally, I follow the same adult male all

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President's Message:

AnthroQuest—Back By Popular Demand

Dear Members,

Many of you inquire about the scientists and grantees who are associated with the Leakey Foundation. Over the past several months, you may have noticed that we have stepped up our efforts to keep you informed by including an expanded insert along with *Evolutionary Anthropology*, the journal that you receive as a membership benefit. Now the Leakey Foundation hopes to carry that trend even further by reviving our newsletter, *AnthroQuest*. We hope that *AnthroQuest* will satiate your curiosity about which research projects the Foundation supports and the ways that these studies improve our understanding of human origins.

Most of our grants can be placed into one of three broad categories: paleoanthropology, primatology, or cultural anthropology. Similarly, each newsletter focuses on one of these fields. An article by a member of our Scientific Executive Committee (SEC) highlights some of the key questions related to the issue's theme. The SEC members are an integral part of the Foundation whose expertise is essential in defining funding priorities, reviewing grant proposals, and guiding our long-term scientific development. This issue's theme is primatology; SEC member Dr. Sandy Harcourt discusses the intriguing possibility of animal "culture."

Another feature in each issue profiles the progress of a Foundation grantee's field research. "Notes from the Field" reflects the wide array of research styles and methods used in the many disciplines that we fund. It is fascinating to read about the



experiences of researchers as they deal with day-to-day situations. These "slice of life" articles reveal the difficulties they face, as well as the successes they achieve. In this issue, grantee Sharon Pochron updates her progress in research on the foraging strategies of yellow baboons in Tanzania.

We will continue to keep you apprised of upcoming Leakey Foundation events. As you can see in this issue's "Calendar of Events," lectures and symposia are scheduled that will examine many of the key questions that challenge researchers today. Our annual meeting in Salt Lake City includes a public lecture by Dr. Richard Wrangham, one of the world's leading authorities on primate behavior. Wrangham will draw on his recently published book, *Demonic Males: Apes and the Origins of Human Evolution*, to discuss how studies of great apes and human evolution can help us understand the prevalence of male violence.

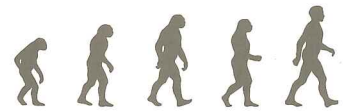
We hope you find our premier issue on primatology to be thought-provoking and enjoyable. The *AnthroQuest* newsletter represents our "evolving" endeavor to respond to member requests. We appreciate your membership and hope that you will continue to support the Leakey Foundation. Our goal is to provide an informal outlet for presenting current issues in human origins to a general audience. With this goal in mind, we hope to foster insight into the issues researchers face and the answers they seek. I think Louis Leakey would agree that it is only with a clear understanding of the past that we can wisely guide the direction of the future.

Sincerely,

A handwritten signature in black ink that reads "Kay Woods".

Kay Harrigan Woods
President

September 1996



The Leakey Foundation

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TO HUMAN ORIGINS,
BEHAVIOR AND SURVIVAL

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77 Jack London Square
Oakland, California 94607
Telephone (510) 834-3636
Facsimile (510) 834-3640
E-mail leakeymem@aol.com

We are proud to announce that
The Leakey Foundation has
produced a 1997
Understanding Great Apes
calendar which will be available
to our members in
October 1996.

Chimpanzees *continued from front page*
forest has tall trees, whereas at Gombe, more open woodland areas with lower canopies predominate. The tall trees of T'ai make it difficult and quite costly for chimps to go after the colobus that are in the branches. The T'ai chimps, therefore, have to catch adult monkeys if the reward is to be worth the effort. Moreover, in order to capture adults, who are strong and agile, the chimps must hunt in cooperative groups. In the low trees at Gombe, by contrast, it is difficult for the colobus to escape, making it relatively easy for lone chimps to capture them, and worth their while to go for the easiest prey — infants.

As mentioned earlier, the West African chimpanzee culture of palm nut cracking is an apparent anomaly. On the face of it, explaining why these

particular chimpanzees engage in this practice is easy — it is a simply a product of historical availability. The nut is a native of West Africa that has only relatively recently spread across the rest of the continent. However, the reason that West African chimps crack palm nuts is more difficult to determine than it first appears. As William McGrew of Miami University in Ohio points out, there are many other similar nut trees throughout the rest of Africa that the other chimps have had plenty of opportunity to exploit — if only . . . what? They were intelligent enough to do so?

Almost certainly, we should not equate culture with intelligence. Penny Patterson's Koko has shown that gorillas can probably learn as many "words" as chimps can. And yet wild gorillas do not use tools. Instead, Caroline Tutin's sightings of termite mounds smashed

open along gorilla paths indicate that where brawn is sufficient, tools aren't needed: who would use a fishing rod, if the equivalent of a stick of dynamite were available?! Besides, bonobo chimpanzees are highly intelligent (Kanzi of the Rumbaugh lab at Yerkes can understand spoken English — "Go get the rag doll from the freezer!") but, like gorillas, barely use tools in the wild at all.

We used to think of culture as purely human. Studies of primates force us to think more deeply about our distinctiveness and about the meaning of culture. As yet, though, we do not know of animals using "cultural" differences to discriminate against other groups. Enemies are not recognized by arbitrary distinguishing characteristics, but because they are *unfamiliar*. In that sense, animals show better judgment than we do. ■

Notes *continued from front page*

day. After a while I was able to get very close to all but a few adult males. None of the troops allow other people to get closer than 60 meters.

At first, distinguishing the adult males from one another was more difficult than I had expected. None of them had the scars or broken tails which the literature refers to so frequently. However, by keeping notes on tail length, body build, and facial markings, I am able to differentiate them. Recently, two males received noticeable scars: Benito received pink scars on his testicles during a fight and Stumpy's tail was partly bitten off.

Each morning I follow my focal baboon. Follows last up to eight hours, a schedule determined more by the limitations of the human body than by choice. After a typical day's hike of approximately 12 kilometers, my pack feels much heavier than its actual 14 pounds. Bipedalism is not *always* an advantage—as the baboons climb nimbly over huge kopjes, the sun beating down at 100° F, I struggle to keep up. My data is biased towards the first half of the day because often I

am unable to follow the baboons through the whole day. I thought I might start some follows at noon to gather more evening data, but searching for baboons at midday turned out to be a losing game of hide and seek. In the end I simply had to tough it out by trying to conduct as many full-day follows as possible. This becomes easier as I grow stronger.

While following each troop I carry a Sokkia Global Positioning System (GPS), which also functions as a data collection device. I collect the troop's location every 10 minutes and every time one of my focal subjects engages in a behavior of interest. The GPS data is accurate to within two meters and allows me to determine the distance a troop travels each day, their home range size, and their speed. (Doubtless their speed was higher during my initial months when the baboons were traveling farther and faster in order to avoid me!) I also use the GPS to map the pri-



Sharon Pochron in Ruaha Park, Tanzania

mary features of the home range and to produce detailed vegetation maps. The wet-season home range data maps vegetation and features covering approximately 32-square kilometers. I update the vegetation maps as the seasons change.

I created a database which stores all data collected with the GPS. At the end of each day, I download the information onto a laptop computer. I archive my data and import it into a database program. Some of the data categories include latitude, longitude, altitude, troop name, individual name, food type, beginning and ending time of food handling, number of bites eaten, amount of food remaining, and environment descriptions. Murphy's law has reared its ugly head: the Landrover and computer have needed repair. But despite delays I feel satisfied with my overall progress. I have begun to identify enough types of baboon plant foods to conduct useful

Continued on back page

Calendar of Events

- 1996 October 3-5 **Annual Board Meeting, Salt Lake City, UT**
Fri., Oct. 4: Lecture by Dr. Richard Wrangham*
Sat. Oct. 5: Trustee Workshop
- December 6 **Board of Trustees Meeting, Stanford University**
Granting Session
- December 7 **Out of Africa Symposium, Stanford University***
Speakers: Dr. Gunter Brauer - University of Hamburg
 Dr. Robert Franciscus - Stanford University
 Dr. Jean Jacques Hublin - Museum of Man, Paris
 Dr. Arthur Jelinek - University of Arizona
 Dr. Paul Mellars - Cambridge University
 Dr. Fred Smith - Northern Illinois University
- 1997 February 20 **Annual L.S.B. Leakey Lecture**
California Academy of Sciences, San Francisco, CA*
Dr. Alan Walker - Pennsylvania State University
- April 25 **Board of Trustees Meeting, San Francisco, CA**
Granting Session
- October 1-15 **Annual Meeting, Cape Town, South Africa**
(final dates and location to be determined)

*Open to all members

**For membership information please call (510) 834-3636
or e-mail leakeymem@aol.com**

The L.S.B. Leakey Foundation was established in 1968 by a group of eminent scientists and informed lay people who recognized a critical need to strengthen financial support for new multi-disciplinary research into human origins, our evolving nature, and environmental future. It was named in honor of the man who is known as "the Darwin of Pre-History," Louis S.B. Leakey.

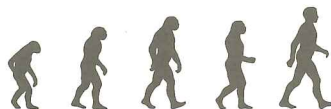
Our organization supports projects in all fields of human evolution. Recent priorities have included research into the environment, archeology, and human paleontology of the Miocene, Pliocene, and Pleistocene; into the behavior, morphology, and ecology of the great apes and other primate species; and into the behavioral ecology of contemporary hunter gatherers.

Modern science has progressed rapidly since the Leakey Foundation began and the Foundation has been involved in some of the most exciting discoveries. However, there is still so much to learn. ■

Notes *continued from page 3*

home range assessments. I have substantial amounts of map and troop location data and have recently begun to collect high-quality behavioral data. I am consistently able to locate the troop, identify my focal male, and remain close enough to him to determine what he is eating.

I now realize that the scope of my original project was a bit overambitious. I have had to scale it back somewhat, but I am quite pleased with the quality of my data and the number of hypotheses that I can test. Upon analysis, I believe that my data will shed light on the foraging behavior of our extinct evolutionary ancestors. I thank the Leakey Foundation for supporting my research—I am grateful and delighted to have worked on this project in Ruaha National Park. ■



The Leakey Foundation

77 Jack London Square
Oakland, California 94607