supports nor disproves the role of natural selection in the evolution of hormonal profiles, it strongly suggests that genetically determined variation, the necessary condition for selection to occur, is present in male baboons. This research was funded by the National Science Foundation (BCS-0827570), Rotary International (Walter D. Head Foundation), the New York Consortium in Evolutionary Primatology (NYCEP), and the Center for the Study of Human Origins (CSHO) at New York University.

Evaluating the emergence of tuberculosis in South Africa.

TESSA J. CAMPBELL[1] and REBECCA R. ACKERMANN[1]. [1]Department of Archaeology, University of Cape Town.

Tuberculosis is the leading cause of mortality in South Africa today. While in Europe and North America the topic has received much attention, little is known about the emergence of tuberculosis in southern Africa. Based on observations by early settlers, explorers and missionaries, numerous texts suggest that the disease was imported with European contact. However, these observations are sometimes contradictory to one another and to local oral histories. To date, the contribution of the archaeological record to this question has not been well-evaluated. Here we present preliminary results from a larger project that aims to identify possible cases of tuberculosis in the archaeological record of South Africa, in order to contribute to broader understanding of when and where the disease first emerged and how it spread.
Skeletal collections of historic and earlier Holocene material housed in institutions throughout South Africa were examined. Preliminary evaluation of 665 specimens has revealed five cases of possible tuberculosis infection: three show pathology of the vertebrae, one of the radius and one of the ribs. Three of these specimens are from the late 1800's and derive from mining and port towns where tuberculosis is known to have been well established by this time. The remaining specimens were unearthed from rural contexts, with at least one specimen dated to the late 1700's (possibly earlier). This is a particularly interesting observation because European contact with this population was thought to be limited at this time. The presence of tuberculosis in this region possibly indicates declining rural conditions. This study was funded by the Wenner-Gren Foundation Wadsworth African Fellowship.

Phylogenetic relationships of the mangabeys inferred from analyses of multiple independent loci.

ANGELO P. CANEDO[1,2], ANDREW S. BURRELL[1,2], EVELYN JAGODA[3], CHRISTINA M. BERGEY[1,2], ANTHONY J. TOSI[1,2], and TODD R. DISOTELL[1,2]. [1]Center for the Study of Human Origins, Department of Anthropology, New York University, [2]New York Consortium in Evolutionary Primatology, [3]Edgemont Senior High School.

The Old World monkey tribe Papionini includes seven genera: *Macaca, Papio, Theropithecus, Mandrillus, Lophocebus*, *Rungwecebus*, and *Cercocebus.* Within the Afro-papionins, there are two broad morphological grades: small bodied, short faced 'mangabeys' including *Cercocebus*, *Lophocebus*, and *Rungwecebus*, and large bodied, long faced 'baboons' including *Mandrillus*, *Papio*, and *Theropithecus*. However, these morphological grades do not reflect phylogeny, as Afro-papionins form two clades, one consisting of *Cercocebus* and *Mandrillus*, the other of *Lophocebus*, *Papio*, *Rungwecebus*, and *Theropithecus*. The relationships among genera within these clades are unclear, and hybridization and genus-level paraphyly may be common, possibly reflecting multiple instances of the independent evolution of baboon-like lineages from mangabey-like ancestors.
To test this, we have assembled the largest comparative molecular dataset of the Afro-papionins to date. This consists of data from multiple independent loci, including mitochondrial and Y-chromosomal sequence data and dozens of Alu elements, derived from a large sample set that includes representatives of peripheral species such as *C. sanjei* and *C. galeritus*. Current analyses of these data reveal strong support for the *Cercocebus/ Mandrillus* and *Lophocebus/ Papio/ Rungwecebus/ Theropithecus* clades identified in previous studies. Also as seen previously, there is incongruence between trees derived from different gene sequences. Preliminary analyses reveal inconsistent support for the paraphyletic placement of *Mandrillus* within *Cercocebus*, and there is no clear resolution of the relationships among *Lophocebus*, *Papio*, and *Theropithecus* clade. Given the conflicting signals from the sequence data, we are generating candidate Alu markers using a novel bioinformatics program to further clarify the phylogenetic relationships within each clade. This grant was funded by NSF grant #BCS-0715281 and the Wenner-Gren Foundation for Anthropological Research.

The locomotor repertoire of early *Homo*: Insights from chimpanzee variation.

KRISTIAN CARLSON[1,2], RICHARD WRANGHAM[3], MARTIN MULLER[4], RICK SUMNER[5], MARY ELLEN MORBECK[6], TOSHISADA NISHIDA[7], ATSUSHI YAMANAKA[8] and CHRISTOPHE BOESCH[9]. [1]Institute for Human Evolution, University of the Witwatersrand, Johannesburg. [2]Department of Anthropology, Indiana University, Bloomington. [3]Department of Anthropology, Harvard University, [4]Department of Anthropology, University of New Mexico, [5]Department of Anatomy and Cell Biology, Rush Medical College, Chicago, [6]Department of Anthropology, University of Arizona, [7]Japan Monkey Centre, [8]Department of Oral Anatomy, Kagoshima University Dental School, Japan, [9]Max-Planck Institute for Evolutionary Anthropology, Leipzig.

One of the unresolved issues in paleoanthropology is the extent to which postcranial morphology of early *Homo* evinces adaptations for arboreal versus terrestrial positional behavior. A paucity of early *Homo* postcrania, and the incomplete nature of associated skeletons attributed to *H. habilis* (e.g., OH62), propagate the controversy. A recent study of relative limb strength (Ruff, 2009) has swung the pendulum back towards inferring a significant arboreal component in the locomotor repertoire of early *Homo*. The goal of this project is to embrace variation in chimpanzee postcranial morphology in order to examine these recently attributed arboreal adaptations, and determine whether particular chimpanzee communities offer more insight than others.
Using computed tomography (CT) and commercial imaging software, we acquired cross-sectional data from humeral and femoral diaphyses of 40 adult chimpanzees originating from several habituated communities (i.e., Gombe, Kibale, Mahale, and Taï). Using proxy measures of limb strength, or relative rigidities, several properties of the chimpanzee limb bones were compared to equivalent properties of OH62 humeral and femoral diaphyses following estimated lengths of the latter. In overall femoral to humeral rigidity at estimated midshafts, OH62 falls within the 95% confidence interval of the collective chimpanzee sample, similar to the recent study by Ruff (2009). However, OH62 approaches regression lines of certain chimpanzee communities more closely than others. We offer potential implications of these similarities according to associated life history, habitat, and locomotor repertoire information of these communities, which we suggest may be useful for further understanding locomotor adaptations of early *Homo*. Research partially supported by the L.S.B. Leakey Foundation and U.S. National Science Foundation.

Energetic significance of food processing: A case study in tubers.

RACHEL N. CARMODY, GIL S. WEINTRAUB and RICHARD W. WRANGHAM. Department of Human Evolutionary Boilogy, Harvard University.

All human societies regularly process their foods by both thermal and non-thermal means. This feature distinguishes us from other species, and may even be compulsory given our evolutionary commitment to a high-quality diet. Yet our understanding of the functional significance of food processing remains limited, particularly with regards to energy. In this study, we conducted feeding trials in a model animal to investigate the relative effects of cooking and pounding on the energy value of tubers. Adult male CD-1 mice (n = 17) were fed yams in four treatments, based on a within-subjects study design: raw/whole, raw/pounded, cooked/whole, cooked/pounded. Repeated-measures ANOVA revealed that cooking, but not pounding, improved energy gains as indexed by change in body mass. Whereas mice lost weight on raw treatments (whole: -4.3 ± 0.4 g; pounded: -3.8 ± 0.6 g), they gained weight on cooked treatments (whole: 0.1 ± 0.4 g; pounded: 0.2 ± 0.3 g). Post-study preference tests further support the superior effects of cooking. Fasted