

## ABSTRACTS

### Distal Phalanges and the Origin of Crown-Group Anthropoids

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Hundreds of primate phalanges have been recovered from the Shanghuang fissure fillings from China. This sample includes proximal, middle and distal phalanges from the hand and foot including over three hundred nail bearing distal phalanges. For the distal phalanges, there are a variety of shapes, sizes, and types. Overall, there are five varieties of adapiform fossil primates at Shanghuang including a sample ( $n = 25$ ) of "grooming claws". Within the sample of Shanghuang haplorhines, eosimiids are extremely common with tarsii-forms, including *Macrotarsius*, tarsiids, and a crown anthropoid being far rarer. The origin of anthropoids, a topic near and dear to Professor Elwyn Simons, has had a long history of discovery and debate and this keystone evolutionary event separates primitive primates from the monkey and ape lineages. Paleontological and comparative anatomical work in the 1990s discovered eosimiids and clarified the initial stem lineage of anthropoids in Asia but the evolutionary connection to crown-group anthropoids, taxa with a close connection to living anthropoids, remains problematic and unresolved. Here we present a few new postcranial elements that document a crown-anthropoid in Asia at Shanghuang, China, 45 million years ago.

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### Female sooty mangabeys (*Cercocebus atys*) select softer seeds than males

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Much of the diet of *C. atys* consists of the oily nut of *Sacoglottis gabonensis* which is accessed by postcanine crushing of a hard protective coat. During a typical foraging bout, some nuts are discarded after initial crushing attempts; however, the reasons why individual nuts are rejected remain unclear. We examined hardness values of nuts rejected by adult male and female sooty mangabeys and compared these to an assemblage of random nuts on the forest floor. Our null hypothesis was that there is no significant difference in hardness between these groups.

We collected data on *C. atys* feeding on *S. gabonensis* in the Tai National Park, Cote d'Ivoire in

July-August, 2016. Nuts discarded by monkeys were collected and measured using type A and D durometers. We measured 104 nuts discarded by females and 79 discarded by males. The two largest values were averaged and compared employing nonparametric procedures. For both Shore A ( $P=0.0003$ ) and D ( $P=0.026$ ) hardness, discarded nuts differed significantly between sexes, with nuts discarded by females being harder than those of males.

Mean hardness of 69 nuts sampled randomly fell between the male and female values, but was not statistically different from hardness of nuts discarded by either sex. These results suggest that adult female but not adult male sooty mangabeys select nuts that are less mechanically challenging than the average. Thus, hardness does not appear to be the primary driving factor of food selection in male *C. atys*.

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### Human remains and vodou practitioners in northern Haiti: Ethics and research design in ethnoarchaeology

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Here I suggest that bioarchaeologists who conduct projects in cultural settings with active descendant communities should make ethnographic interviews and participant observation the first phase of research design. To do so prior to excavation and analysis of human remains yields several productive outcomes. Research questions or issues for explorations are significantly broadened. Social inferences drawn from bioarchaeological data are enriched. Collaboration with local communities (or their disinclination to do so) engenders a bioarchaeological practice that is sociopolitically aware and ethically responsible.

As a case study, I discuss my ethnographic work in the northern Haitian community of Milot. The town is the location of the UNESCO World Heritage site Parc National Historique, comprised of Sans Souci Palace, Citadelle Laferrière, and Ramiers. Henri Christophe ordered his subjects to build these monumental structures after the Haitian Revolution (1791-1804), the only successful slave revolt in history. My work has explored the connection between Milot's patrimony and its residents, the majority of whose families have lived in the town for multiple generations. Interactions with community members have generated insights about the tangible and intangible dimensions of patrimony in northern Haiti, specifically the historic and contemporary use and significance of vodou religion and rituals, mortuary spaces, and human bones. This information has underscored the necessity of involving the descendant community in future bioarchaeological investigations focused on

slave villages, plantations, and their associated cemeteries.

### Sex-related Connectivity Differences in the LSCN

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Sex-related differences in the human brain are a persistent topic of interest in studies of human behavior and evolution. However, studies of sexual dimorphism of brain morphology, activity, and their relationship with behavior present enormously conflicting findings, especially relating to language function. Our previous research of a sample of young adult males established connectivity of the language-specific cerebrocerebellar network (LSCN), a neural network connecting the left inferior frontal lobe to the right lateral cerebellum, which we subsequently determined to be strongly correlated with language ability. Here, we test the hypothesis that there are sex-related differences in the LSCN and its relationship to language.

Our sample included age-matched male ( $N=60$ ) and female subjects ( $N=7$ ). We quantified measures of connectivity in the LSCN using *in vivo* MRI and diffusion tensor imaging (DTI). We calculated correlation of these connectivity measures with language production using scores from the Clinical Evaluation of Language Fundamentals – 5<sup>th</sup> Edition (CELF5).

Our results show that connectivity measures of the LSCN do not differ significantly in males and females. Further, the LSCN measures are strongly correlated with language production ability in both male and female subjects. These preliminary results indicate that the LSCN is a key network in the human brain in both males and females for language production. Future investigation into connectivity of additional cortical areas hypothesized to be important in language is necessary to determine whether there are any sex-related language connectivity differences in the human brain.

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### Ancestry estimation in Asian and Asian-derived populations using dental morphology

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