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ABSTRACTS

focusing on the relationship between adverse health experiences in childhood (growth disruption, infection, and nutritional deficiency) and their impact on respiratory disease burden in adulthood (inferred using visceral surface periosteal rib lesions). Using Bayesian modeling, we found that, contrary to expectations, the posterior odds of presenting rib lesions were lower among individuals with evidence of early life stress compared to individuals without such lesions after adjusting for age-at-death, biological sex, and social class ($OR_{\text{ribra orbitalis}}: 0.38, 95\%CI:0.15-0.90$; $OR_{\text{enamel hypoplasia}}: 0.28, 95\%CI:0.12-0.64$). Furthermore, neither sex nor class mediated the relationship between early life stress and respiratory disease burden, although being from the middle/upper class was associated with a lower odds of presenting rib lesions. Given previous evidence of a survival differential between individuals with and without rib lesions, these findings suggest that females and males who experienced early life stress were better able to physiologically respond to respiratory system stress as adults. We argue that women are not necessarily absent from all bioarchaeological research. Rather, inequalities other than those related to sex and gender may have a greater impact on morbidity and mortality in certain historical contexts.

Vertical jumping agility as a key measure of performance in strepsirrhine primates

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Though leaping is considered critical for strepsirrhine evolution, we lack sufficient leaping performance data to evaluate its adaptive role. Here, we examine vertical jumping agility (VJA) in four strepsirrhine species at the Duke Lemur Center: a specialized leaper (*Propithecus coquereli*, ~ 4.13 kg), two intermediate leapers (*Varecia variegata*, ~ 3.55 kg and *Eulemur coronatus*, ~ 1.82 kg), and a generalist (*Cheirogaleus medius*, ~ 0.20 kg). VJA – jump height divided by takeoff duration + flight duration – represents how much and how quickly an animal changes vertical position. VJA is tied to mechanical power density (i.e., power per unit mass), which generally scales with negative allometry. We collected force data for 309 jumps and found absolute VJA was greatest in *Propithecus* (1.45 m/s, vs. *Eulemur*: 1.09 m/s, *Cheirogaleus*: 1.03 m/s, and *Varecia*: 0.957 m/s). However, adjusted for target height, VJA was greatest in *Cheirogaleus* (1.68 m/s, vs. *Eulemur*: 1.50 m/s, *Propithecus*: 1.14 m/s, and *Varecia*: 0.993 m/s). *Propithecus* generated

the greatest absolute power densities (168 W/kg, vs. *Cheirogaleus*: 128 W/kg, *Eulemur*: 106 W/kg, and *Varecia*: 98 W/kg). But, *Cheirogaleus* had the greatest relative power densities adjusted for target height (200 W/kg, vs. *Eulemur*: 118 W/kg, *Propithecus*: 111 W/kg, and *Varecia*: 78.7 W/kg). Small-bodied strepsirrhines may require greater VJA and power density to reach a given target height because their small size affords them less time to achieve takeoff velocity, highlighting how key aspects of leaping performance vary in this clade.

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Using micromammal faunal analysis to contextualize vegetation structure local to the development of early human behavior in Pleistocene Morocco

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Contrebandiers Cave, a late Pleistocene site on the coast of Morocco preserves the remains of early anatomically modern humans, and is unique for its bone tool assemblage used in the preparation of leather and fur, representing some of the earliest evidence of clothing production in the human archaeological record. Reconstructing paleoenvironmental conditions local to this site should provide insight as to when and why anatomically modern *Homo sapiens* evolved such modern behaviors. Micromammal faunal analysis is a preferable method for cave sites because they are typically abundant and have the ability to provide a fine scale, local paleoenvironmental signal unique to the immediate surrounding area. Analysis of all present rodent genera (*Meriones*, *Mus*, and *Gerbillus*) produces a Gerbillinae:Murinae ratio indicative of an arid and open local habitat (399:133 = 3.0). A comparison of overlapping genera present at Contrebandiers and the nearby cave site El Harhoura 2 (*Meriones* and *Mus*) shows a difference between sites (G:M = 2.9 and 3.2, respectively). El Harhoura 2 has yielded micromammal assemblages richer in biodiversity, suggesting that there may be more to uncover at Contrebandiers with a larger sample size of rodents. Ongoing work in this study will utilize 13 previously un-analyzed collections of micromammals from Aterian levels to reconstruct the environment around Contrebandiers. Future work will assess how vegetation structure might have interacted with local climatic variables in a manner that may have necessitated novel human behaviors.

First macaque fossils from Sudan

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Macaques have the broadest geographic range among all living non-human primate genera. Today, *Macaca* includes more than 20 species, which collectively span a diverse array of habitats, behaviors, and morphologies. Among these, the only extant species outside Asia is *M. sylvanus* (the Barbary macaque), with natural populations restricted to small forest patches in Algeria and Morocco and an introduced population in Gibraltar. The macaque fossil record is rich across Europe but is limited to a handful of occurrences in northern Africa. Here, we significantly expand the known fossil distribution of macaques by describing two specimens from later Pleistocene sediments of the middle Atbara River in eastern Sudan. We compare these fossils – one partial maxilla and one partial mandible – to extant cercopithecids and fossil macaques using linear metrics and qualitative features of the dentition, cranium, and mandible. We refer both individuals to *Macaca sylvanus* based on morphological affinities to extant and fossil representatives of this species. Fossils described here provide the first and only record of *Macaca* in sub-Saharan Africa and indicate the importance of the Nile Valley as a north-south faunal dispersal corridor. The specimens have inferred ages of ~160 ka and ~90 ka, which suggest that this taxon was a persistent inhabitant of the middle Atbara valley during the later Pleistocene. The presence of *M. sylvanus* in Sudan reaffirms the importance of the fossil record for reconstructing faunal distributions in the relatively recent geological past, and opens a new window onto the last quarter million years of *Macaca* evolution.

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Beer, Bones, and Biomechanics: Investigating the Impacts of Alcohol Use Patterns on Femoral Cross-Sectional Geometry in Young Adult Males

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