

floresiensis). LB1's endocast reproduces derived shape features in the same three cortical association regions that Dart had identified on the Taung endocast, which led Falk *et al.* to conclude (as Dart had for Taung) that the morphology of Hobbit's cerebral cortex resulted from global cortical reorganized. This paper compares the two endocasts and discusses the possible evolutionary significance of their similarities and differences.

The role of tuberculosis in sex-specific mortality, Massachusetts 1850-1910.

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Between 1850 and 1910 tuberculosis (TB) was the leading cause of death in the U.S., and the industrialized world, generally. Using a bioanthropological approach, we investigate a series of 14,810 individual deaths from a cluster of towns and one small city in Massachusetts. In this paper we focus on the epidemiology and social etiology of differences by sex and by age. In the so-called modern mortality regime females have higher survivorship at all ages compared to males. Historically this was not always the case.

We were able to confirm a pattern of excess female mortality over males, most apparent at reproductive age, and explained largely by TB deaths. This sex difference has been previously noted in the literature for other geographic regions. However, what has been missing and is contributed here is a more detailed inspection of competing causes of death, and the patterns reflected in male age specific death rates. Our analysis also identified an age-sex mortality crossover effect—in which the previously higher rates of female deaths dropped below those for males at around age 45. After we demonstrate the major patterns graphically, we conclude by discussing the implications for health, productivity and reproductivity in this historical population. As TB regains attention as a world-wide health threat, the biocultural lessons from the past have relevance for today.

Preliminary analyses of five skulls from wet-burial bundles recovered from Sitio La Regla (P30 Rg), Costa Rica.

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Important clues to understanding how and when humans entered the Americas may be gathered from the skeletons and burial practices of prehistoric groups in the New World. I examined osteological material at the Museo Nacional de Costa Rica which were recovered secondary, wetland burials from the Sitio La Regla site, dated to ~2,500 ya. These materials are unique for their early age and internment style. I gathered craniometric data for 5 adult skulls using 29 variables in FORDISC 3 and CRANID. These data were used to test hypotheses about affinities with other extinct and extant human groups. The manner of burial

was similar to the Windover site in Florida, dated to ~7,500 ya. The sample comprised 3 males and 2 females. Group affinity analyses yielded mixed results. Classic Native American traits were found in three of the skulls (2 male/1 female). These traits include: cranial vaults are short and broad at the base, lower face, moderate nasal aperture, and complex cranial sutures. Analyses also showed that 2 individuals (1 male /1 female) exhibited European traits: limited prognathism, narrow nasal aperture, smaller zygomatics, and simple cranial sutures. These initial data suggest that the humans who entered the New World may not all exhibit traits traditionally associated with extant Native Americans of Asian origin in the New World. Future analyses of the postcranial and material culture remains should enhance and shed more light on the origins of these ancient inhabitants of Costa Rica and how they came to live there. This work was supported in part by Museo Nacional de Costa Rica Departamento de Antropología e Historia and the Department of Anthropology, University of Miami.

Patterns and sources of mortality among geladas (*Theropithecus gelada*) at Guassa, Ethiopia.

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Mortality patterns provide critical insights into primate life histories and population trends, yet data on the factors that contribute to variation in mortality trends in wild primates are limited. We present the results of a 31-month study of the patterns and sources of mortality among members of a ~220-member band of wild geladas inhabiting an unusually ecologically-intact alpine grassland at Guassa, Ethiopia. The habitat at Guassa is dominated by tall grasses, experiences long periods of inclement weather, and contains a full complement of potential gelada predators. Among the adults (n=58) in 10 intensively-monitored one-male units, 38% of males and 29% of females died during the study. Parasitic infections were associated with elevated rates of mortality among male, but not female, geladas. Ethiopian wolves (*Canis simensis*) posed little threat to geladas and were often documented nearby (≤ 5 m from geladas), while domestic dogs (*Canis familiaris*) from distant farms cooperatively hunted geladas on multiple occasions, killing at least three geladas. Additional evidence suggests spotted hyenas (*Crocuta crocuta*) also prey on geladas at Guassa. Infant (n=25) survivorship values to 12 and 18 months were 68% and 65%, respectively. Three infant deaths occurred in the aftermath of takeovers of their units and were directly observed or inferred to have resulted from infanticide. Overall, adult and infant rates of mortality among geladas at Guassa appear to be higher than for geladas in the Simien

Mountains. Our results offer insight into the factors that contribute to variation in mortality among geladas inhabiting a relatively intact ecosystem. This study was funded by Margot Marsh Biodiversity Foundation, Pittsburgh Zoo, Cleveland Metroparks Zoo, and Primate Conservation Inc.

Three-Dimensional Microtomographic Analysis of Sexual Dimorphism in Human Molar-Crown Tissues.

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Anthropologists frequently assess the sex of an individual from dental remains by using external tooth dimensions. While males have larger teeth than females on average in many species, it is unknown whether this size difference is also manifest in the thickness and three-dimensional distribution of enamel and dentine. In this study, microtomographic imaging was employed to assess sexual dimorphism in crown-tissue components in human molars. Although few measurements were statistically significant between sexes, males and females do differ in enamel thickness and in crown composition. Males exhibit greater average crown volume, dentine volume, enamel-dentine junction surface area, and enamel volume. Males are also characterized by thicker maxillary molar enamel and thinner mandibular molar enamel than females. In contrast, females evince a greater proportion of enamel in their crowns and relatively (size-scaled) thicker enamel compared to males, likely owing to their relatively reduced volume of dentine. These sex differences parallel those documented between modern humans and Neandertals, wherein modern humans have smaller molars but absolutely and relatively thicker enamel than Neandertals, which is a function of their similar enamel volume deposited over a smaller dentine core. Variability between sexes, and the potential for this variation to bias measurements deriving from samples where one sex is over-represented, should be considered in future studies of enamel thickness and crown composition, particularly when isolated fossil teeth and teeth of unknown sex are examined. Supported by the Max Planck Society, the EVAN Marie Curie Research Training Network (MRTN-CT-019564), and the Sigma Xi Grant-In-Aid of Research (The Scientific Research Society). AJO acknowledges the Spanish Ministry of Science and Innovation for their support.

Limb development and its relationship to locomotion in juvenile apes: *Pan* and *Gorilla*.

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