that is strongly at odds with a simple bifurcating tree. Ancient DNA has affirmed the existence of the theoretical "ghost populations" such as "Ancient North Eurasians" that were invoked to explain odd patterns in the genetic affinities of present-day populations, but has also provided surprising attestation of groups whose existence was far closer to unanticipated. Physical-anthropological hypotheses, many of them originating in the pre-genomic era, have played an important if often underappreciated role in the motivation and framing of recent ancient DNA work. We evaluate new and existing genome-wide data from Okunev — an archaeological culture of the Middle Yenisei and eastern steppe in southern Siberia (latter third to first half of the second millennium BC) — to evaluate one such hypothesis: that these Bronze Age populations were "collateral relatives" of ancestral Native Americans who persisted surprisingly late in Eurasia. We find compelling partial validation of this notion, present some more complex models capturing other important aspects of these data, and offer some suggestions about the ongoing importance of physical anthropology in the era of genomics and ancient DNA.

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Intra-specific variation in skeletal traits of free-ranging rhesus macaques (Macaca mulatta)

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Intra-sexual selection is thought to play a significant role in the evolution of sexual dimorphism in body mass and canine size in primates. Sexual dimorphism correlates with levels of direct male-male competition across primate species, but the ways in which sexual selection processes generate intra-specific variation in sexual dimorphism are not well understood. This study investigates intra-specific variation in skeletal traits related to body size and weaponry in free-ranging rhesus macaques, which have reduced levels of direct male-male competition and are less dimorphic than many other macaque species. Linear measurements were collected on skeletons of 297 skeletally mature rhesus macaques that died of natural causes on Cayo Santiago. Skeletal traits were between 10% and 32% larger in males than in females, but canine size was more dimorphic. Canine base measurements were 49-51% larger in males than in females. Only three of the skeletal traits were more variable among males than females, the ways in which sexual selection processes generate intra-specific variation in sexual dimorphism in rhesus macaques because variation in these traits has a genetic basis, but that environmental variance contributes significantly to variation in many skeletal markers of muscle strength.

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Isotopic evidence for habitat heterogeneity at Bukwa, an early Miocene catarrhine site in Uganda

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Bukwa, an early Miocene fossil site on the flanks of Mount Elgon, has yielded a small but diverse assemblage of mammals. Recent fieldwork has provided an opportunity to refine the chronostatigraphic and paleoecological context, and expand the faunal list, including several new primate specimens. 40Ar/39Ar radiometric dates on the bracketing lavas indicate an age of ~19 Ma, placing it chronostatigraphically in an intermediate position relative to other early Miocene sites in East Africa. Comparative faunal studies suggest rapid faunal turnover around this time, with Bukwa documenting FADs for a number of immigrant lineages. In order to assess the extent to which environment may be affecting community composition, ecological conditions and possibly selective forces, enamel from a suite of fossil herbivores were analyzed isotopically to constrain dietary paleoecology. The cumulative δ13Cenamel values range from -16.1 to -9.2‰, indicating dietary niches compatible to modern herbivores inhabiting broken canopy forests to open woodland habitats. The more positive δ15Nenamel values (+9 to -8‰) potentially reflect foraging on water stressed C3 browse along ecotones or at canopy margins where evaportranspiration is high. Alternatively, these values may reflect a C3 (or C4) grazing component in the diet, as indicated by high proportions of grass phyloliths (18%) in the paleoflora. Overall, these data are consistent with emerging isotopic data from other early Miocene sites in Uganda and Kenya, indicating that developing catarrhine diversity in East Africa during this time may be linked to habitat heterogeneity generated by vegetation successions along the dynamic flanks of active volcanoes.

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Macaque Attack: The association between dental pathologies and temporomandibular osteoarthritis in Macaca fascicularis

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Testing how pathological changes to the dentition covary with temporomandibular joint (TMJ) pathology will improve our understanding of masticatory function and dysfunction. Pathology rates are well documented for humans, but not for other primate species. 84 complete Macaca fascicularis (36 females, 48 males) skulls were evaluated for TMJ osteoarthritis, anteromolar tooth loss, periodontal disease, dental caries, broken teeth, dental abscesses, tooth crowding/ malocclusion, and other craniofacial trauma and pathologies using standard criteria. Fisher’s exact tests for differences between males and females as well as variation in pathology rates for animals with and without TMJ osteoarthritis were carried out in SPSS. There were no differences in rates of lesions between males and females (p = 1.000-0.187), but there were several differences in pathology rates for animals with versus without TMJ osteoarthritis, including anteromolar tooth loss (p = 0.011), periodontal disease (p = 0.002), broken teeth (p = 0.002), and dental abscesses (p = 0.018). The rates for dental caries (p = 0.603), tooth crowding (p = 1.000), trauma (p = 0.578), and other pathologies (p = 0.387) did not vary by TMJ status. These results suggest an association between at least some kinds of oral lesions and osteoarthritis of the TMJ in M. fascicularis. Broken teeth and abscesses likely measure related phenomena. While osteoarthritis is often a sequel to trauma, the rate of trauma in this sample may be too low to detect an association. Further analyses will assess relationships between pathologies and overall craniofacial and dental morphology.

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New Eocene primates from the Tornillo Basin of Trans-Pecos Texas

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The Tornillo Basin is the southern-most intermontane Laramide basin in North America. Bounded by the Chihuahua Tectonic Belt to the west and the Marathon uplift to the east, the Tornillo Basin documents a range of primate taxa occurring at lower latitudes in the North American Paleogene. Although large in area (approx. 28,000 km²) the Tornillo Basin is heavily overprinted by Middle