

ABSTRACTS

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Much effort has gone into exploring ways to understand food preference in primates. Recently, there has been increased interest in understanding the role of nutrition in shaping foraging behavior and food preference. Traditionally, food electivity indices were calculated to rank the relative importance of food items in the diet. Here, we explore the relationships between macronutrient profiles of food items and Vanderploeg and Scavia's relativized electivity index (E^*) using diets from wild Bornean orangutans (*Pongo pygmaeus wurmbii*). We also present a novel use of isoclines for evaluating the nutritional value of food items. Data were collected at the Tuanan Research Station in Central Kalimantan, Indonesia. Using generalized additive models (GAM), we show that macronutrient content has a significant, nonlinear positive effect on E^* (GAM, $p < 0.001$). We also show that although food items differ in absolute amounts of nutrients, they often fall on the same intake isocline, indicating equivalent rates of nutritional return between such items. We find that accounting for the rate of nutritional intake per food items represented by the isoclines improves the deviance explained in E (GAM, $p < 0.001$). We suggest the use of isoclines as an effective visual method for evaluating the relative quality and preference of food items.

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Ape quest in the Vallès-Penedès Basin (2014–2017): Fieldwork results and prospects for the future

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We report preliminary results of paleontological fieldwork (surveys, samplings and excavations) performed in 2014–2017 at several Miocene successions of the Vallès-Penedès Basin (Vallès sector), with the aim to recover new hominoid remains and contextualize previous findings. The areas of Can Poncic (CP) and

Can Pallars i Llobateres (CPL) were prospected (2017), whereas excavations continued at Can Llobateres (CLL, 2014–2015) and were resumed, after decades of inactivity, at Castell de Barberà (CB, 2014–2015) and Creu de Conill (CCN, 2016–2017). No further *Hispanopithecus* remains were found at CLL1 (9.8 Ma), whose low fossiliferous richness recommends to redirect future fieldwork efforts on other areas: CCN, where abundant fossils (but no primates) were recovered from an earliest Vallesian layer (11.2 Ma); and CPL, where a maxillary fragment of *Hispanopithecus* cf. *laietanus* was surface-collected close to the classical outcrops (10.0–9.7 Ma). In turn, prospections/excavations at CB enabled to locate the main fossiliferous horizon. Although it is mostly exhausted, the find of *Hippotherium* remains and magnetostratigraphic analyses unambiguously confirm the formerly-contentious earliest Vallesian age (11.2 Ma) of this site. In contrast, the type locality of *Hispanopithecus crusafonti* (CPL1) could not be determined, due to extensive vegetation cover. Nevertheless, we were able to approximately locate the classical CP outcrops (10.3–10.0 Ma). In years to come, magnetostratigraphic sampling of CPL and CP could enable a more accurate dating of previous hominoid finds from these areas, while further excavations at CCN are the most promising for finding additional hominoid remains in this basin.

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Assessing age at puberty using skeletal markers in a medieval population from Sudanese Nubia

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Puberty marks a biological transition between childhood and adulthood, but has social significance through increased participation and responsibility within families, communities, and cultures. In addition to demonstrating the trajectory of biological development, examining puberty markers in archaeological populations may provide an estimate of when the social threshold of adulthood was crossed, and to what extent it varies within or across populations. A recently developed method for assessing age at puberty for an archaeological sample (Shapland and Lewis 2013) was used in the current study. Puberty markers including hamate hook development, anterior curvature of cervical vertebral bodies, and radial and iliac crest fusion were assessed for 51 individuals aged 10 to 18 from two medieval cemeteries at Kulubnarti in Sudanese Nubia. Previous studies indicate that individuals in the S cemetery at Kulubnarti showed poorer health compared to the R cemetery, potentially

resulting in differential growth during adolescence. Results demonstrated that the S cemetery had an earlier average age for each stage of puberty, up until peak height velocity during which the average age for the S cemetery was 16, 14.6 for the R cemetery. Also only the R cemetery had individuals in the deceleration phase of puberty within the observed age range. Although Mann Whitney-U tests comparing ages at different stages of puberty between the two cemeteries did not show any statistically significant differences, the overall pattern suggest that there may be some lagging of later pubertal timing in the S cemetery compared to the R cemetery.

Elucidating ancestry variation in the Philippines via mixture analysis

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This project applied unsupervised model-based clustering to infer proportions of continental – Asian, African and European – ancestry from cranial shape data for 330 individuals from the Philippines. We studied four different samples: a contemporary collection of forensic relevance from Manila, the Howells and Hanihara Philippines series, and the Hanihara Philippines-Negrito series. We also included craniometrics for parental reference samples ($n=977$) to capture the variation for the most likely sources of continental ancestry. Using the optimal, three-cluster, solution, which corresponds to a trihybrid-ancestry model, we calculated proportions of Asian, African and European ancestry for each individual and mean percent values for each population. Population of origin explains ~60% of the variation in each ancestry component. Significant differences exist among the geographic populations and some of the Philippines samples. Filipinos appear considerably admixed, relative to the other Asian populations, carrying, on average, less Asian ancestry (70%) than our Korean (99%), Japanese (96%), Thai (93%), and Vietnamese (84%) reference samples. Asian ancestry is greatest (76%) for the Manila sample; the Negrito sample has equal Asian and African (47%) ancestry. Using models with more clusters, we identified patterns of relationships between, and evidence of substructure within, the parental reference samples and Philippines populations. The Manila sample often aligns with low-admixture Asian groups, while the Howells and Hanihara series show greater affinity with the European and African groups. We repeated our analyses including Australo-Melanesian data. The trends discovered for the Southeast Asian samples agree with genetic admixture studies and population interactions in this region.

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