less of the placement of NMMP 20. Many features in NMMP 20 are primitive euprimate traits. On the contrary to the previous suggestions that the morphology of NMMP 20 enhances its adapiform status, we found a greater number of characteristics in the humerus and the calcaneum of NMMP 20 that favors its primitive anthropoid status (e.g., the lesser tuberosity subequal to the greater tuberosity in width, the robust and straight humeral shaft, the round deltopectoral crest edge, the posterior position of the deltopectoral crest on the shaft, the medially flared humeral trochlea, and the round calcaneocuboid facet) than those that supports its adapiform status (e.g., the humeral head projecting above the tuberosities, the large lateral epicondyle, and the presence of the trochlear gutter).

Adult male relations with juveniles among brown capuchins (*Cebus apella*) in Suriname: affiliation, antagonism or benign neglect?

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Brown capuchins (*Cebus apella*) are unusual among primates for high rates of social interaction between adult males and immatures. Even within *Cebus*, the frequent grooming of immatures by adult males is not found in congeners. In our effort to interpret field data on adult male and immature brown capuchins, we were surprised that the preponderance of reports of adult male-immature social relationships among primates concentrate on male interactions with infants (i.e. paternity and infanticide). Nonetheless, adult male-juvenile interactions are arguably of comparable importance. This is particularly true for *C. apella*. Adult male tenure in brown capuchin troops can last a decade and, plausibly, significantly shape juvenile social success as an adult.

Our long-term study of multi-male troops of wild brown capuchins in Suriname found that juveniles are responsible for initiating contact with adult males, and that the alpha male attracts them most strongly. We considered four functional benefits for these juvenile preferences: enhanced opportunities for observational learning of foraging skills; social buffering; access to preferred foods; and the nurturing of adult male acceptance of juveniles to facilitate long-term troop residency and status acquisition. Our field data indicate that juveniles maintain relations with the alpha male as a mechanism to increase social acceptance, observational learning, and access to foraging sites. Juveniles interact with natal subordinate males primarily to scrounge for food, despite considerable risk of agonism from these males. In contrast, juvenile interactions with non-natal males are characterized by low levels of agonism and are associated with contexts of social buffering.

Muzzle morphology and size in *Mandrillus leucophaeus*.

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The drill (*Mandrillus leucophaeus*), a forest living Old World monkey, exhibits high levels of sexual dimorphism, with a limited number of males in each group (those that are 'fatted') developing extreme secondary sexual characteristics, including muzzle growth. In this study, the degree of secondary bone growth on the muzzles of wild-caught drills was assessed in relation to overall body size. Bone growth on different parts of the muzzle was also investigated. In female drills, muzzle breadth was positively correlated with an indicator of overall body size, skull length. However, there was no significant correlation between muzzle breadth and skull length in males. Paranasal swellings and other secondary bone growth on the muzzle in males also appeared to be independent of body size. This suggests that secondary muzzle growth in male drills is independent of overall body size. Furthermore, male secondary muzzle bone growth appeared not to follow a defined trajectory, with no correlation in the sizes of different areas of the muzzle. Further work is therefore required to investigate the relationship between body size and the development of secondary sexual features in drills. Attention should also be paid to the mechanisms and trajectories of muzzle bone growth and development in these animals.

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Changes in social structure in *Eulemur fulvus rufus* in southeastern Madagascar from 1988-2003.

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Based on a 10-year study (1988-1998) of the social structure of *Eulemur fulvus rufus* at the Vatoharanana study site (RNP), Overdorff and colleagues (1999) described this subspecies as having stable multi-male/multi-female groups with an average of 9.5 group members, a male-biased sex ratio, and female philopatry. These results are consistent with reports from other eastern and western populations of *E. f. rufus*. Continued study of these groups from 1998 until August 2003 at the study site, however, suggests that the social structure of this subspecies may be more flexible than originally reported. Although the birth-rate, male:female sex ratio, and number of male emigrations remained similar between the two studies, we found a decrease in average group size (9.5 to 6.3) and an increase in the frequency of group membership changes (2.1 to 4.2 times/year) in the latter study. These differences seem to be linked to an increase in female transfers between the study periods (zero to 7 instances). Finally, groups traveled outside of their home range areas more often in the second period than they had previously, migrating up to 8 km away from the study site once or twice a year. These changes in *E. f. rufus* social structure coincide with increased densities of their main food competitors: *Varecia variegata* and *Eulemur rubriventer*.

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Late Pleistocene human evolution in China: East Asian pathways to modernity.

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The replacement model for modern human origins continues to garner widespread support based on accumulating genetic and fossil evidence indicating demic diffusion of moderns into various regions of the old and new worlds commencing approximately 100,000 or more years ago. Much of the discussion surrounding modern human origins has, however, focused on the relationship between Neandertals and expanding modern populations. While still debatable, both genetic and fossil evidence can be marshaled to build a persuasive case for the near total replacement of Neandertals by moderns by approximately 28,000 years ago. It can be argued, however, that the Neandertals are a special case and the criteria used to demonstrate replacement in Europe and the Near East are not applicable to East Asia.

Transitional fossils exist in East Asia that display heritage features shared with predecessor populations of *Homo erectus* as well as derived features shared with

anatomically modern humans. These transitional fossils are the best evidence for anatomical continuity in East Asia throughout the Pleistocene. Genetic evidence, however, supports the spread of certain aspects of the modern human genome into East Asia within the last 60,000 years. A model of continuity with hybridization can best explain the discrepancy between physical and genetic evidence for modern human evolution in East Asia.

The roles of infant crying and motherese during prelinguistic evolution in early hominins.

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As human infants develop, a special form of infant-directed speech known as baby talk or motherese universally provides a scaffold for their eventual acquisition of language. This paper explores when and how motherese first evolved in hominins, and suggests that it formed a prelinguistic substrate for the emergence of protolanguage. Although infant chimpanzees older than two months are able to cling unaided to their mothers' bodies, human infants never develop the ability to do so because they are born at extremely undeveloped stages, i.e., when their heads are still small enough to negotiate bipedally-adapted birth canals. According to the *"putting the baby down" hypothesis*, before the invention of baby slings, early bipedal mothers would have carried their helpless infants in their arms and routinely freed their hands to forage for food by putting their babies down nearby where they could be kept under close surveillance. Unlike chimpanzees, human babies cry excessively as an honest signal of need for reestablishing physical contact with caregivers, and human mothers engage in motherese that functions to sooth, calm, and reassure infants. These special vocalizations are in marked contrast to the relatively silent mother/infant interactions that characterize living chimpanzees (and presumably their ancestors), and probably evolved in the wake of selection for bipedalism to compensate for the loss of sustained direct physical contact that was previously achieved by grasping extremities. Motherese is therefore hypothesized to have evolved in early hominin mother/infant pairs, and to have formed an important prelinguistic substrate from which protolanguage eventually emerged.

Differential subsistence adaptations of agriculturalists and herders of the early intermediate period in the Lurin Valley, Peru: New data from stable isotope analysis.

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The coastal site of Villa El Salvador is a burial ground for two populations of seemingly different origins and subsistence practices. Dating to the Early Intermediate Period (200 B.C.E. – 600 C.E.), the two populations are physically marked by stature and cranial deformation. Those thought to have been agriculturalists are taller and exhibit cranial deformation while those thought to have been highland herders are shorter and do not have cranial deformations. We have selected stable isotope analysis, a well-established method for studying ancient diet, to test whether these physical differences may be directly correlated with different dietary patterns, and likely residence locations.

Carbon and nitrogen isotope ratios in bone collagen, and carbon isotope ratios in bone apatite and tooth enamel were determined for a significant sample of the Villa El Salvador remains to determine the amount terrestrial C3 and C4 plant and animal foods as well as freshwater and maritime resources contributed to the diets of the two morphological groups. While bone collagen primarily indicates the source of protein in the diet, bone apatite and tooth enamel are produced from all dietary components. Furthermore, since bone is constantly reabsorbed and replenished, the isotopic composition of bone collagen and apatite indicate the diet over the last several years of life, while tooth enamel reflects diet at the age of crown formation, thus allowing a comparison within individuals to assess immigration or other mobility patterns. Our results provide important insight into pre-Inca subsistence adaptations and organization, as well as social and mortuary practices.

Faunal remains from *La Nuestra Senora de Atocha* and *Santa Margarita*.

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We analyzed the faunal remains from two 17th century Spanish galleons, to document diet, and perhaps lifestyles, aboard these vessels as they returned to Spain from the Americas. We hypothesized that the assemblage would be primarily New World fauna since the ships were returning to Europe. Analysis of the 311 bones yielded the following inventory: cattle (*Bos taurus*, N=134), hogs (*Sus scrofa*, N=82), horses (*Equus caballus*, N=28), fowl (*Gallus gallus*, N=10; *Meleagris gallopavo*, N=6), sea turtle (*Chelonia mydas*, N=4), buffalo (*Bison bison*, N=8), sheep/goats (*Ovis/Capra*, N=33), rats (*Rattus rattus*, N=4), and deer (*Odocoileus virginianus*, N=2). No human remains were recovered. The faunal remains are largely butchered and preserved meaty parts of cattle and hogs. The horses, buffalo, and deer were live cargo because there were no butchering marks, with rats likely being uninvited stowaways. It is likely that the lone buffalo was intended for presentation rather than a food source during the voyage. Our data did not support the hypothesis that only New World fauna were part of ships' stores. Old World fauna constituted the bulk of the remains. Processing marks on the faunal remains suggest that each item was used to the fullest extent possible.

Dental caries distribution in the Anglo-Saxon population of Sedgeford, England.

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During the Anglo-Saxon period, caries rates were typically lower than in most other periods in British history. Previous researchers have concluded that decay commonly occurs on the approximal surface of the tooth, particularly at the CEJ, in all but the youngest age groups, where it occurs on the occlusal surface. In this study, the dentition of 100 adult skeletons from the Anglo-Saxon cemetery at Sedgeford was examined for the presence and location of dental caries using a dental probe and magnification. Carious lesions were recorded as approximal, occlusal, buccal, non-approximal root surface, or gross caries if the area of decay was too large for the initial location to be determined. Preliminary results indicate that, without division into age groups, the incidence of approximal and occlusal surface caries is approximately equal. When separated into age groups, the youngest age group, 15 – 24 years, has almost exclusively occlusal caries. Approximal caries is prevalent in the 25 – 34 and 35 – 44 age groups, though there are still several cases of occlusal caries. In the 45 – 54 age group, approximal and gross caries are equally dominant. In the 55+ age