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The inclusion of weapons in some burials in Early Medieval England (c AD 500-1000) suggests that these individuals may have held warrior status. This study tested the archaeological evidence for this warrior role by examining skeletal material from two sites in Northern England; Norton Mill Lane, North Yorkshire and Castledyke South, North Lincolnshire. The prevalence of osteoarthritis, Schmorl's nodes, enthesopathies and the degree of humeral asymmetry was compared between adult males buried with and without weapons.

Males with weapons were more frequently affected by Schmorl's nodes and enthesopathies on the left side of the upper limb, and had significantly more osteoarthritis in the elbow and wrist. While the humeri of males with weapons at Castledyke were more symmetrical that those without weapons, at Norton this pattern was reversed. This difference may be due to variations in the weapon assemblages found at the two sites; both sites had spears but shields were only present at Norton.

Carrying a shield means the spear must be used single-handed, but without a shield it can be used as a two-handed weapon. If these men used the weapons they were buried with, for fighting or for training or display, then these variations in burial assemblage may represent differences in the use of weapons, leading to different risks of developing markers of activity related stress.

This study shows that weapon burial may indicate not only a symbolic social role but also the undertaking of a level of physical activity beyond that of other males.

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Buccal lateral enamel formation in Neandertal molars in comparison to two modern human population samples.

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Perikymata are surface manifestations of enamel growth layers which form with periodicities of 6-12 days in African apes and humans. This study compares the number of perikymata on Neandertal (N=78), Northern European (N=96), and southern African (N=122) molar buccal lateral enamel. If consistent with recent analyses of anterior teeth in these same groups, Neandertal molars would be expected to have higher perikymata counts than southern African molars.

With crown height as a covariate, ANOVAs for perikymata counts were conducted separately for the buccal lateral enamel of seven molar cusps. Population was a statistically significant source of variance only for UM1 and LM2 mesiobuccal lateral enamel. Bonferroni-adjusted pairwise comparisons of mean perikymata counts revealed that for UM1, the Neandertal mean was significantly greater than that of southern Africans but not Northern Europeans. For LM2, the Neandertal mean was significantly greater than both the Newcastle and southern African means. Furthermore, the strongly predictive relationship between perikymata counts and periodicity for southern African LM2 mesiobuccal lateral enamel made possible the prediction of periodicities for the Neandertal LM2 under the assumption of equivalence to southern African enamel formation time. Under this assumption, periodicities for several Neandertal LM2s would fall below the known lower limit (6 days) of periodicities in African Apes and humans.

These data therefore suggest that, as with Neandertal anterior teeth, the buccal lateral enamel formation time of Neandertal molars falls within the modern human range of variation. Implications of these data for Neandertal life history will be discussed.

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Patterns of positional behavior among atelines: a comparative analysis of *Alouatta seniculus*, *Lagothrix lagotricha*, and *Ateles belzebuth* in Ecuador.

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Atelines exhibit a diverse spectrum of positional behaviors, ranging from the least suspensory *Alouatta* to the more suspensory *Ateles* and *Brachyteles*. *Lagothrix* is typically described as behaviorally intermediate. However, methodological differences in the definitions of positional behaviors have made it difficult to make direct comparisons between ateline genera. In this study, data on the positional behavior of *Alouatta seniculus* are presented. These data were collected using the sampling methods and behavioral descriptions of Cant *et al.* (2001, 2003) and Youlatos *et al.* (in prep) in their comparison of *Ateles belzebuth* and *Lagothrix lagotricha* positional behavior. Data on all three species were collected on populations in the rainforest of Ecuador and statistically analyzed using resampling methods. The similar methodologies allows for meaningful comparisons across all three species. *Ateles*, *Lagothrix* and *Alouatta* differ significantly from one another in the frequency of suspensory locomotor behaviors and suspensory feeding postures, confirming *Lagothrix's* intermediacy in terms of suspensory adaptations. Similarly, all three differ significantly from one another in terms of bipedalism. *Ateles* uses these orthograde behaviors most frequently while *Alouatta* uses more pronograde behaviors. *Lagothrix* is significantly more likely to utilize drop/leaps and *Alouatta* is more likely to use ascents/descents to negotiate their environment. Overall, *Alouatta* exhibits a more limited locomotor repertoire, reflecting their lack of suspensory and orthograde specializations. In addition to differing frequencies of positional behaviors, these species perform categorically similar behaviors in different ways. Implications for analyzing their positional behavior through a video based study of wild atelines will be discussed.

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Inter- and intraspecific differences in primate carpal morphology

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Research has shown that there are significant differences in positional behaviour between primate species of the same genus (e.g., Doran, 1993). Positional behaviour is also known to vary between sexes of a single species when sexual dimorphism is high (e.g., Sugardjito and van Hooff, 1986; Doran, 1993). Our study aims to test whether these more subtle inter- and intraspecific differences in positional behaviour are reflected in carpal morphology. Many researchers have shown that carpal morphology reflects broad locomotor categories among primates (e.g., Jenkins and Fleagle, 1975; Richmond, 2006). If differences in carpal morphology correlate with more detailed differences in positional behaviour, it will enable more informed reconstructions of the functional morphology of the fossil carpals. We analyse the carpal morphology of three carpals in extant hominoids, some cercopithecoids and a variety of fossil Miocene hominoids. Linear variables of the scaphoid, capitate and hamate were analysed using multivariate analyses. Results indicate that the morphology of all three carpals reflect broad, primate locomotor categories to varying degrees. Carpal morphology distinguishes among species and subspecies of *Gorilla*, *Hylobates* and, to a lesser extent, *Pan* and *Pongo*. There are significant differences in carpal shape between the sexes, even when sexual dimorphism is relatively low, and females tend to have larger carpals than males once the effect of body size is removed. These results can be used to better interpret the positional behaviour in fossil hominoids.

3D reconstruction and study of a new late Middle Pleistocene Hominid: Biache-Saint-Vaast 2, Nord, France.

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The Middle Pleistocene open-air site of Biache-Saint-Vaast (Nord, France) has been dated between 170-250 kyears (MIS 7 and early MIS 6). It delivered a mousterian industry and some human cranial remains mixed with a moderate/cold fauna (A. Tuffreau, 1988). A posterior portion of neurocranium was discovered in situ (Biache-Saint-Vaast 1) and previously studied (B. Vandermeersch, 1982, H. Rougier, 2003). We present the study of other human cranial remains (Biache Saint-Vaast 2) identified during the study of fauna assemblages. They include three fragments of the same skull: (i) a fragmented anterior portion of the frontal bone, (ii) the lateral squama of the left parietal bone in connection with the temporal bone and the greater wing of the sphenoid bone, (iii) the anterior portion of the occipital bone.
After X-Ray CT scanning of each bone, we performed a virtual 3D reconstruction of the skull. The frontal bone fragments were isolated and repositioned. The left osseous block was articulated with the frontal bone. Its spatial position was based on several 3D references (X-Ray CT and 3D morphometric characteristics of other European Pleistocene hominids). The anterior occipital bone fragment was positioned approximately due to the lack of anatomical connection.
The 3D anatomical and morphometric study of Biache-Saint-Vaast 1 and 2 clearly shows morphological similarities with the "Classical" Neandertals (i.e. beginning of a lambdoid flattening, reduced mastoid, elongated temporal bone, depressed external auditory meatus, supraorbital torus shape). These similarities support the hypothesis that Biache-Saint-Vaast fossils are part of the earliest Neandertals in Western Europe.

Early Upper Paleolithic human dental remains from Ucagizli Cave (Hatay, Turkey).

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Human skeletal remains associated with the early Upper Paleolithic in Eurasia are extremely scarce. Ucagizli Cave (Hatay, Turkey) contains a sequence of early Upper Paleolithic levels more than three meters thick. The sequence spans the period between approximately 30,000 and 41,000 (uncalibrated) radiocarbon years before present. Both early Ahmarian and Initial Upper Paleolithic (IUP) technocomplexes are represented by abundant archaeological remains. This presentation describes the human dental remains from Ucagizli Cave.
A total of 10 human teeth have been collected from archaeological deposits at Ucagizli Cave. The sample includes 2 incisors, two canines, one premolar and five molars. One tooth comes from the earliest part of the Initial Upper Paleolithic, three from the end of the IUP, and six from the Ahmarian layers. Most of the specimens are healthy, permanent teeth. The teeth are in a variety of states of wear, from nearly unworn to heavily worn. Based on the stratigraphic dispersal and variation in wear it is likely that each specimen represents a different individual. On the whole, the human teeth from Ucagizli Cave are consistent with *Homo sapiens,* but possible Neanderthal traits are present in at least one specimen.

The taxonomy of the Flores hominin: An historical perspective.

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The announcement in October of 2004 of the discovery of a new small-bodied hominin from Flores was remarkable not simply as a result of the species' unanticipated morphology, but also because it was alive so recently. The holotype, a skeleton designated LB1, was estimated to be a mere 18,000 years old. Predictably, various interpretations regarding taxonomy and phylogeny followed, with the discoverers opting to erect a new species within the genus *Homo*. In contrast, other scientists suspect that the individual was a pathological modern human, as distilled in a recent *PNAS* article (Jacob *et al.* 2006).
That an unprecedented hominin morphological pattern is the result of pathology, and does not represent a novel taxon, is not new in paleoanthropology. This study examines primary historical literature, documenting several cases in which non-modern looking fossils were variously interpreted as genuine new species versus pathological *Homo sapiens* (*e.g.* Neandertal and *Pithecanthropus*). In addition, this study examines related controversies in which purported new hominin forms were alternatively interpreted as extinct ape species closely allied to the living hominoids (*e.g.* Taungs and *Pithecanthropus*).
Both scenarios reflect the ongoing polarization of scholars into those that tend to "lump" hominin diversity into existing categories, and those that "split" the same morphological diversity into a much broader adaptive radiation. These taxonomic philosophies clearly belie divergent views of the evolutionary process itself.
By placing the Flores discovery within the context of these prior controversies, it is possible not only to better understand the nature of the debate but also to surmise the likely resolution.

Was sexual dimorphism in early *Homo erectus s.l.* as large as in *Gorilla*? A reassessment of the ER-1813 cranium in the light of hominoid allometries.

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The taxonomic affinities of cranium ER-1813 from Koobi Fora have been debated ever since its discovery; usually it is tentatively included in *Australopithecus* or *H.habilis*. Recently, Gathago et al. (2006) placed ER-1813 in the KBS-Member, the same stratigraphic context/age as early *H.erectus s.l.* crania from the same area, thus increasing the plausibility of the specimen's attribution as a female of the taxon.
We present a geometric morphometric study that explores shape-allometry of east African *Homo* specimens in the context of hominoid growth-allometries, using new reference-based reconstructions of ER-1813, ER-1470, ER-3733, ER-3883, OH-9 and WT-15000. Our comparative sample comprises 417 recent specimens of *Gorilla*, *Pan*, *Pongo* and *H.sapiens* of both sexes, whose ages range from infancy to adulthood. We also included the *A.africanus* crania Taung, Sts71, Sts5 and Stw505, and four *Paranthropus* crania.
On each specimen we measured 3D-coordinates of 47 craniofacial landmarks and 300 semilandmarks and converted these to shape-variables by Procrustes superimposition. The allometric trajectory of each group was calculated by regressing shape on the logarithm of centroid-size in Procrustes-form-space. When size is ignored, ER-1813 plots close to *H.erectus s.l.*, whereas in form-space the *H.erectus s.l.* specimens cluster to the exclusion of ER-1813. If the latter indeed represents a female form of *H.erectus s.l.* then the size difference between the *H.erectus s.l.* 'males' and ER-1813 implies that sexual dimorphism was as large as in *Gorilla* and *Pongo*. We discuss these intriguing results in the light of the recent findings in Dmanisi.
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Population level differences in overall linear enamel hypoplasia frequency, sexual dimorphism and lesion location in the permanent dentition: inferences on the adaptive significance of three development models in the Yucatan Peninsula.

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Over all linear enamel hypoplasia (LEH) frequencies, LEH sexual dimorphism and lesion location within teeth were compared between populations and generations to evaluate the adaptive significance of three development models in present day Yucatan