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Paleoneurology is hampered by the lack of a chimpanzee brain atlas based on a proper sample size. Here we present such an atlas, and discuss variability in chimpanzee frontal lobe morphology as well as implications of this variability for the study of hominin endocasts. We will provide evidence, contra Connolly (1950), that a middle frontal sulcus is not rare in chimpanzees, and therefore frequent occurrence of this in australopith endocasts (Falk, 2014) cannot be evidence of an evolved trait. We will also discuss broadening of the frontal lobes in australopiths, the probable locations of the medial and inferior frontal sulci on the endocast of MH1, evidence of plastic deformation on the orbitofrontal surface of MH1, and the implications of this deformation for the morphology of its inferior frontal gyri.

Between continuity and discontinuity: an overview of the West African Paleolithic over 200,000 years

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In comparison with the archaeological richness of the eastern and southern parts of the continent, the West African Palaeolithic has remained largely unknown until recently. Despite its relation to the Sahara and relevance to the major issues of Palaeolithic north-south mobility, survey of this area has been quite scanty. However, during the last century, much Palaeolithic evidence (ESA to LSA) was recognized by researchers, suggesting early human occupations for at least 200,000 years. Unfortunately, these finds were surface finds or not in situ and never dated, although inaccurate chronological information was sometimes presented. Thus, a good chronostratigraphic framework and detailed description of the different cultural complexes were lacking. Thanks to international research programs since the 2000s, new important and valuable data has been obtained from different areas, from such sites at Ounjougou in Mali, along the Faleme River in Senegal, or in northern Ghana around Birimi. These show a more intricate cultural history, between continuity and discontinuity, than a simple series of traditions. Consequently, knowledge of the West African Palaeolithic (and more broadly in Africa) has been enriched and significantly contributes to key questions currently being addressed: the expansion and mobility of modern humans, the emergence and

development of techniques, and chronological gaps and hiatus in the cultural history.

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Reconsidering the high mandibular condyle of robust australopiths

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Years ago, Smith and Savage (1959) suggested that high mandibular condyles of herbivores are more mechanically efficient than are low-positioned condyles because the high condyle is linked to larger jaw-closing moments of the masseter and medial pterygoid muscles during chewing. Others, including Rak and Hylander (2008), have considered additional competing hypotheses regarding condylar position, with a particular emphasis on robust australopiths. My purpose here is not to review competing hypotheses for condylar position. Instead, I'll focus on observations regarding maximum gape data for baboons and geladas (Hylander, 2013), and these observations are relevant for why robust australopiths have highly positioned mandibular condyles.

It is well known that baboons have low-positioned condyles, whereas geladas have high-positioned condyles. Following Smith and Savage, high condyles are presumably linked to larger muscle-moments and bite force, whereas low condyles are linked to smaller muscle-moments and bite force. Importantly, and all things considered equal, larger moment arms should be associated with less gape, whereas smaller ones should be associated with more gape.

Surprisingly, relative gape (maximum gape/projected jaw length) in baboons and geladas are near identical. Values for male and female baboons and geladas are as follows: *Papio anubis* 1.12 and 0.87, *Papio hamadryas* 1.03 and 0.86, and *Theropithecus gelada* 1.05 and 0.90, respectively. Contrary to expectations, relative gape values (for each sex separately) are more or less identical. Thus, these data do not support the hypothesis that high condyles in robust australopiths are necessarily linked to increased muscle-moments and bite force.

Diet and Nutritional Health among Cassava Producing Agriculturalists of East Java

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Research from the 1960 and 1970s documented high levels of malnutrition and small adult body size among rural populations of Java (Bailey, 1961, Edmundson, 1972, 1977). Since then, there has been little subsequent work to explore whether nutritional circumstances have improved over the last 40-50 years. This paper investigates patterns of dietary consumption, and measures of nutritional status in a sample of 84 men and 113 women (18-80 years) from the rural agricultural society Ngilo-Ilo, East Java. Mean daily energy intakes are modest, averaging 1374 kcal/day in men and 1026 kcal/day in women. The primary energy source is carbohydrates, contributing 75% of calories, compared to 12% for fat, and 13% for protein. These macronutrient proportions and dietary patterns are remarkably similar to those documented by Edmundson in three agriculturalist villages in East Java four decades ago (1972). Protein intakes are lower than WHO recommendations, averaging 36g/day in men and 27g/day in women. Both men and women had inadequate intakes of calcium, zinc and iron, but consumed adequate levels of vitamin C and vitamin A. The average male BMI in 1970s was 20.6 kg/m² (157cm height/ 50.9kg weight), comparable to the mean of 20.5 kg/m² (159.8cm height and 51.6kg weight) for men of this study. These findings indicate that undernutrition remains a major problem in east Java, and that agrarian reform of the 1970s did not help improve the plight of small-scale rural farmers.

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Kojo's (Dis)ability: Interpreting Impairment in an 18th Century Jamaican Maroon Community

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More than three centuries ago, a group of self-emancipated African-Jamaicans, referred to as Maroons, selected a man named Kojo as their leader. Although Kojo is among the most famous and historically best-documented African-Jamaicans of his time, little is known about his physical appearance. Based on one somewhat-vague primary source and one illustrated secondary source, 19th and 20th century writers generally accepted that Kojo was "hunchbacked" (i.e., his spine was abnormally kyphotic). More recent scholarship has challenged this interpretation, claiming that Kojo's deformity was not corporeal, but rather rhetorical—nothing more than a posthumous colonial effort to disfigure an otherwise indomitable adversary. However, when viewed through the lens of critical disability theory, little compelling ethno-historic evidence can be found to substantiate the assumption that, if Kojo did indeed have a visible body difference, like kyphosis, such a condition would have necessarily disqualified him from holding the chief Maroon leadership position. To the contrary, special marked status

may have actually enabled Kojo to assume power. Thus, it is suggested that, in this specific context, scholars have traditionally failed to account for the role of cultural creativity in the social construction of disability and alternate ability. More broadly, it is argued that without this type of careful and culturally specific contextualization, bioarchaeologists run the risk of conflating impairment and disability.

Behavioral comparisons with peers for a young adult female chimpanzee (*Pan troglodytes*) following application of sensory integration therapy

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The Holly Project was initiated in 2009 to investigate and address atypical behavioral patterns in a young adult female chimpanzee (*Pan troglodytes*) at the Saint Louis Zoo. Holly initially presented with a range of stereotypies, restricted social interactions, lack of rest times and poor occupational performance in routine activities. Holly's abnormal behavior resulted in social isolation and affected group dynamics, for example through avoidance behavior. A therapeutic intervention (TI) plan for Holly, developed utilizing human sensory integration theory, was implemented during 2010 and 2011. Periodic monitoring of Holly's activities using interval sampling of focal individuals continued, allowing examination of changes in behavior.

Comparative data were also collected on Holly's peers within her social group. Pre-TI, Holly differed from her peers in almost every behavioral category, notably stereotypic behavior, social grooming, and social proximity. Post-TI, Holly's stereotypic behaviors and time alone decreased, while social grooming increased. More than 2 years post-TI, Holly's behavioral profile showed sustained improvements relative to pre-TI, but still differed from her peers. Relative to them, Holly was groomed less, still had higher rates of stereotypies and spent double the time alone. While Holly engaged in more social grooming than her peers at this point, she had fewer different social partners. Interpreting these continued differences is complex. Individual maturity, personality, changes in the social group, and the TI Holly received, are likely contributors to the quantitative differences. Qualitatively, Holly appeared to be less distressed and more integrated into her social group than when the project began.

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Skeletal diagnosis of multiple diseases in an European juvenile

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Differential diagnosis of tuberculosis (TB) and venereal syphilis may be difficult as various infections produce similar responses and no skeletal signs are clearly pathognomonic. In contrast to venereal infection, congenital syphilis has distinctive features facilitating a diagnosis. A case study of remains of a juvenile European settler (probably male, 8-10 years old) (B70) buried in the 19th century and excavated in 2000 from the cemetery of the Anglican Church of St. Marys in South Australia is presented. B70 demonstrated that two diseases may have been present at the same time, TB and congenital syphilis. Widespread destruction of vertebral bodies and kyphosis-related rib deformations indicate advanced TB. Severe dental hypoplasia is limited to permanent incisors and first molars, there is pitting on the palate, periosteal reaction on the skull vault and thinned clavicles. Signs were compared to clinically diagnosed cases of congenital syphilis in living children and to archaeological specimens indicating that B70 had congenital syphilis and possible TB. B70 has mixed dentition. Dental signs are not limited to "screwdriver" central incisors and mulberry molars. Apical portions of the crowns of permanent upper, lower, central and lateral incisors have multiple hypoplastic disorganized defects, deciduous canines have severely hypoplastic crowns while possibly hypoplastic occlusal surfaces of lower deciduous second molars are largely destroyed by extensive caries. This indicates that dental pathognomonic signs of congenital syphilis described by Hutchinson and Moon may have moved beyond the upper central incisors and mulberry molars. The findings described may be helpful in future palaeopathological diagnoses.

Functional constraints of primate feeding: Modeling the effect of ligaments and TMJ morphology

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The movement of the mandible with respect to the cranium during feeding is the result of the interaction of active mechanisms (e.g., muscle activation patterns and muscle dynamics), and passive mechanisms (e.g., morphology of jaw joint, elastic and inertial properties of muscles, occlusal morphology). The relative importance of these passive mechanisms, however, is not clear and is often overlooked with respect to active mechanisms. In a previous study, we have shown that the axis of rotation of the mandible, a measure of jaw movement, changes through the gape cycle and the overall location of this axis varies among individuals and species, but it is consistent within an individual. In this study we explore the effect of ligaments and articular morphology on determining the movement of the mandible during feeding. We used 3D models of both cranium and mandible of three species of primates (*Papio*, *Macaca*, *Cebus*). The potential range of mandible positions were modeled by randomly rotating and translating the mandible with respect to the cranium. To constrain the model we used the length of mandibular ligaments (i.e., sphenomandibular, stylomandibular, and temporomandibular) as well as the posterior band of the TMJ, measured from dissections, as well as avoiding the 3D surfaces of the cranium and mandible to overlap. We found little evidence that ligaments drive mandible movement (with the exception of the extreme adduction or protrusion). In contrast, jaw joint and occlusal morphology have larger effects in determining mandible position during feeding.

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Who were they really? Model-free and model-bound dental nonmetric analyses to affirm "known" population affiliations of seven South African "Bantu" samples

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When using biodistance analyses in bioarchaeology, it is common practice to *assume* that pre-modern skeletal samples are representative of the populations to which they are attributed. This study is somewhat contrary, in that recent samples of *known* attribution in the Raymond A. Dart Collection are analysed to assess their value as proxies for pre-modern peoples. Specifically, do Ndebele, Sotho, Swazi, Tswana, Venda, Xhosa, and Zulu "Bantu" samples in the Collection best reflect past, or recent, patterns of population structure? Moreover, although not explicitly stated, many researchers believe that past curation and collection issues make these sample attributions suspect. Thus, model-free and model-bound methods were used to quantify whether these synchronic samples (n=408 individuals) can be used to yield credible diachronic estimates of population affinity and history.