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References

Afrika

Westengen 2014

Ola T. Westengen et al., *Ethnolinguistic structuring of sorghum genetic diversity in Africa and the role of local seed systems*. PNAS **111** (2014), 14100–14105.

pnas111-14100-Supplement.xlsx

Ola T. Westengen, Mark Atam Okongo, Leo Onek, Trygve Berg, Hari Upadhyaya, Siri Birkeland, Siri Dharma Kaur Khalsa, Kristoffer H. Ring, Nils C. Stenseth & Anne K. Brysting

Sorghum is a drought-tolerant crop with a vital role in the livelihoods of millions of people in marginal areas. We examined genetic structure in this diverse crop in Africa. On the continentwide scale, we identified three major sorghum populations (Central, Southern, and Northern) that are associated with the distribution of ethnolinguistic groups on the continent. The codistribution of the Central sorghum population and the Nilo-Saharan language family supports a proposed hypothesis about a close and causal relationship between the distribution of sorghum and languages in the region between the Chari and the Nile rivers. The Southern sorghum population is associated with the Bantu languages of the Niger-Congo language family, in agreement with the farminglanguage codispersal hypothesis as it has been related to the Bantu expansion. The Northern sorghum population is distributed across early Niger-Congo and Afro-Asiatic language family areas with dry agroclimatic conditions. At a finer geographic scale, the genetic substructure within the Central sorghum population is associated with language-group expansions within the Nilo-Saharan language family. A case study of the seed system of the Pari people, a Western-Nilotic ethnolinguistic group, provides a window into the social and cultural factors involved in generating and maintaining the continent-wide diversity patterns. The age-grade system, a cultural institution important for the expansive success of this ethnolinguistic group in the past, plays a central role in the management of sorghum landraces and continues to underpin the resilience of their traditional seed system.

genetic resources | cultural selection | social–ecological adaptation

Aktuell

Calo 2014

Ambra Calo, *Ancient trade between India and Indonesia*. science **345** (2014), 1255.

The map (p. 1441) indicates that Indonesia and Island Southeast Asia joined these networks in the 8th century C.E. Archaeological data from the islands of Bali, Java, and Sumatra show that sea trade in this region began 900 years earlier.

Hall 2014

Stephen S. Hall, *Young blood*. science **345** (2014), 1234–1237.

Young animals' blood holds rejuvenating powers. Amy Wagers wants to know why.

In a series of experiments that have captivated both the field of regenerative medicine and its many lay spectators, Wagers and a diverse army of collaborators have shown that when the blood of a young mouse circulates through the murine equivalent of an old geezer, startling physiological changes occur. Many of the trademark depredations of old age—withering muscles; stiff, oversized hearts; cognitive decline; and even the fraying of the myelin coating that insulates nerve fibers—are slowed, repaired, or even reversed.

Anthropologie

Dunbar 2014

Robin I. M. Dunbar, *How conversations around campfires came to be.* PNAS **111** (2014), 14013–14014.

In fact, Wiessner's data suggest that fire and language may be more closely related than conventional views assume. Whatever may have been the original reason why humans acquired control over fire, it seems that it came to play a central role in two crucial respects. First, it effectively extended the active day. Monkeys and apes are forced to be inactive at night because their relatively poor nighttime vision renders them (and us) especially susceptible to predators at night (all of the major predators of terrestrial primates, including humans, are nocturnal). Fire potentially allowed us to remain active into the evening, thus adding as much as 4 h to the working day. Second, it provided a venue in which social interaction, and pretty much only social interaction, could take place. Those extra evening hours could not be used for foraging, and the lighting isn't that good for making tools; although the evening can be used for cooking and eating, these only take up the whole evening on very special occasions (feasts). There is considerable "empty" time that can only be devoted to conversation (dyadic bonding) and storytelling (communal bonding) or other social bonding activities such as singing and dancing.

Wiessner 2014

Polly W. Wiessner, *Embers of society: Firelight talk among the Ju/'hoansi Bushmen.* PNAS **111** (2014), 14027–14035.

Much attention has been focused on control of fire in human evolution and the impact of cooking on anatomy, social, and residential arrangements. However, little is known about what transpired when firelight extended the day, creating effective time for social activities that did not conflict with productive time for subsistence activities. Comparison of 174 day and nighttime conversations among the Ju/'hoan (!Kung) Bushmen of southern Africa, supplemented by 68 translated texts, suggests that day talk centers on economic matters and gossip to regulate social relations. Night activities steer away from tensions of the day to singing, dancing, religious ceremonies, and enthralling stories, often about known people. Such stories describe the workings of entire institutions in a small-scale society with little formal teaching. Night talk plays an important role in evoking higher orders of theory of mind via the imagination, conveying attributes of people in broad networks (virtual communities), and transmitting the "big picture" of cultural institutions that generate regularity of behavior, cooperation, and trust at the regional level. Findings from the Ju/'hoan are compared with other hunter-gatherer societies and related to the widespread human use of firelight for intimate conversation and our appetite for evening stories. The question is raised as to what happens when economically unproductive firelit time is turned to productive time by artificial lighting.

Significance Control of fire and the capacity for cooking led to major anatomical and residential changes for early humans, starting more than a million years ago. However, little is known about what transpired when the day was extended by firelight. Data from the Ju/'hoan hunter-gatherers of southern Africa show major differences between day and night talk. Day talk centered on practicalities and sanctioning gossip; firelit activities centered on conversations that evoked the imagination, helped people remember and understand others in their external networks, healed rifts of the day, and conveyed information about cultural institutions that generate regularity of behavior and corresponding trust. Appetites for firelit settings for intimate conversations and for evening stories remain with us today.

Methoden

Cano 2014

Raul J. Cano et al., *Paleomicrobiology: Revealing Fecal Microbiomes of Ancient Indigenous Cultures*. PLoS ONE **9** (2014), e106833. DOI:10.1371/journal.pone.0106833.

Raul J. Cano, Jessica Rivera-Perez, Gary A. Toranzos, Tasha M. Santiago-Rodriguez, Yvonne M. Narganes-Storde, Luis Chanlatte-Baik, Erileen García-Roldán, Lucy Bunkley-Williams & Steven E. Massey

Coprolites are fossilized feces that can be used to provide information on the composition of the intestinal microbiota and, as we show, possibly on diet. We analyzed human coprolites from the Huecoid and Saladoid cultures from a settlement on Vieques Island, Puerto Rico. While more is known about the Saladoid culture, it is believed that both societies co-existed on this island approximately from 5 to 1170 AD. By extracting DNA from the coprolites, followed by metagenomic characterization, we show that both cultures can be distinguished from each other on the basis of their bacterial and fungal gut microbiomes. In addition, we show that parasite loads were heavy and also culturally distinct. Huecoid coprolites were characterized by maize and Basidiomycetes sequences, suggesting that these were important components of their diet. Saladoid coprolite samples harbored sequences associated with fish parasites, suggesting that raw fish was a substantial component of their diet. The present study shows that ancient DNA is not entirely degraded in humid, tropical environments, and that dietary and/or host genetic differences in ancient populations may be reflected in the composition of their gut microbiome. This further supports the hypothesis that the two ancient cultures studied were distinct, and that they retained distinct technological/cultural differences during an extended period of close proximity and peaceful coexistence. The two populations seemed to form the later-day Taínos, the Amerindians present at the point of Columbian contact. Importantly, our data suggest that paleomicrobiomics can be a powerful tool to assess cultural differences between ancient populations.

Rougier 2014

Nicolas P. Rougier, Michael Droettboom & Philip E. Bourne, *Ten Simple Rules for Better Figures*. PLoS Computational Biology **9** (2014), e1003833. DOI:10.1371/journal.pcbi.1003833.

Rule 1: Know Your Audience
Rule 2: Identify Your Message
Rule 3: Adapt the Figure to the Support Medium
Rule 4: Captions Are Not Optional
Rule 5: Do Not Trust the Defaults

Rule 6: Use Color Effectively
Rule 7: Do Not Mislead the Reader
Rule 8: Avoid "Chartjunk"
Rule 9: Message Trumps Beauty
Rule 10: Get the Right Tool

Story or Book

Limbrick-Oldfield 2014

Eve Limbrick-Oldfield, *What are the chances?* science **345** (2014), 1253.

The Improbability Principle: Why Coincidences, Miracles, and Rare Events Happen Every Day. David J. Hand. Scientific American/Farrar, Straus and Giroux, 2014. 283 pp.

The law of inevitability describes the simple fact that something must happen. If you hit a golf ball, it must land somewhere. The possible landing locations consist of a huge list of improbable events (at least before you hit the ball), but one of these has to happen.

The law of truly large numbers describes the fact that there are often an extraordinarily large number of opportunities for rare events to happen.

Throughout the book are many examples of the consequences of being unaware of aspects of the Improbability Principle, and so the final chapter is concerned with how we might use these laws to inform our lives. There are certainly principles that I will take away and remember, but I can't help but believe that I will still be amazed and think about fate the next time I am presented with a "coincidence" or rare event.