

## References

### Afrika

VAN DORP 2019

Lucy van Dorp et al., *Genetic legacy of state centralization in the Kuba Kingdom of the Democratic Republic of the Congo*. *PNAS* **116** (2019), 593–598.

[pnas116-00593-Supplement1.pdf](#), [pnas116-00593-Supplement2.xlsx](#)

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Few phenomena have had as profound or long-lasting consequences in human history as the emergence of large-scale centralized states in the place of smaller scale and more local societies. This study examines a fundamental, and yet unexplored, consequence of state formation: its genetic legacy. We studied the genetic impact of state centralization during the formation of the eminent precolonial Kuba Kingdom of the Democratic Republic of the Congo (DRC) in the 17th century. We analyzed genome-wide data from over 690 individuals sampled from 27 different ethnic groups from the Kasai Central Province of the DRC. By comparing genetic patterns in the present-day Kuba, whose ancestors were part of the Kuba Kingdom, with those in neighboring non-Kuba groups, we show that the Kuba today are more genetically diverse and more similar to other groups in the region than expected, consistent with the historical unification of distinct subgroups during state centralization. We also found evidence of genetic mixing dating to the time of the Kingdom at its most prominent. Using this unique dataset, we characterize the genetic history of the Kasai Central Province and describe the historic late wave of migrations into the region that contributed to a Bantu-like ancestry component found across large parts of Africa today. Taken together, we show the power of genetics to evidence events of sociopolitical importance and highlight how DNA can be used to better understand the behaviors of both people and institutions in the past.

**Keywords:** population genetics | demographic inference | anthropology | history

**Significance:** State centralization occurs when previously separate communities are united, forming a single political system often associated with economy, trade, warfare, and culture. One example is the precolonial Kuba Kingdom of the Democratic Republic of the Congo (DRC). Using genetic data from over 690 individuals from the DRC, we compared individuals whose ancestors were part of the Kingdom to individuals from other neighboring groups. We found a genetic legacy of state formation that can be explained by the joining and subsequent mixing of groups at the time of state centralization, as well as evidence of gene flow facilitated by the Kingdom's infrastructure. We characterize the genetic history of this region and show the power of DNA to reveal information on societal systems where few written records exist.

MACEachern 2019

Scott MacEachern, *States and their genetic consequences in central Africa*. *PNAS* **116** (2019), 356–357.

In the van Dorp et al. (4) paper, this seems to be fairly clearcut: Kuba people were organized in small-scale village societies until the early 17th century when the culture hero Shyaam's arrival led to the unification of these disparate populations into the Kuba state.

Again, however, it is somewhat dangerous to use oral historical traditions as a sociopolitical framework for interpreting genetic data when those oral histories admit a variety of different interpretations. It is likely that—as in other parts of the world—processes toward political centralization in Kuba were gradual and extended over significant time periods. It is also likely that the demographic consequences of such centralization were similarly distributed over long time periods, making it difficult to establish a clear-cut beginning to state processes in this part of central Africa. There may, perhaps, be hints of longer-term, larger-scale processes in the genetic analyses in this research; thus, for example, there is a striking termination of admixture events among non-Kuba groups over the period 1400 to 1600 CE, just before the unique Kuba admixture event associated with state formation. It is interesting to speculate about whether this termination might be associated with increased group boundary maintenance during and after that period.

#### MAXMEN 2019

Amy Maxmen, *The quest to build a better cassava*. [nature 565 \(2019\), 144–146](#).

Researchers in Nigeria are combining genomics and conventional breeding to improve the starchy staple crop.

Cassava is a mainstay for subsistence farmers on three continents because it survives in shoddy soil and weathers droughts, and its roots can be harvested at any time of the year. But there are wide geographical disparities in cassava yields. Varieties grown in Africa average 8.8 tonnes of usable root mass per hectare, compared with 13 tonnes per hectare in the Americas and 22 tonnes per hectare in Asia. But foreign plants, which lack defences against African pathogens, have fared poorly.

#### PICKERING 2019

Robyn Pickering et al., *U-Pb-dated flowstones restrict South African early hominin record to dry climate phases*. [nature 565 \(2019\), 226–229](#).

[n565-0226-Supplement1.pdf](#), [n565-0226-Supplement2.xls](#), [n565-0226-Supplement3.wmv](#)

Robyn Pickering, Andy I. R. Herries, Jon D. Woodhead, John C. Hellstrom, Helen E. Green, Bence Paul, Terrence Ritzman, David S. Strait, Benjamin J. Schoville & Phillip J. Hancox

The Cradle of Humankind (Cradle) in South Africa preserves a rich collection of fossil hominins representing *Australopithecus*, *Paranthropus* and *Homo*. The ages of these fossils are contentious<sup>2–4</sup> and have compromised the degree to which the South African hominin record can be used to test hypotheses of human evolution. However, uranium-lead (U-Pb) analyses of horizontally bedded layers of calcium carbonate (flowstone) provide a potential opportunity to obtain a robust chronology<sup>5</sup>. Flowstones are ubiquitous cave features and provide a palaeoclimatic context, because they grow only during phases of increased effective precipitation<sup>6,7</sup>, ideally in closed caves. Here we show that flowstones from eight Cradle caves date to six narrow time intervals between 3.2 and 1.3 million years ago. We use a kernel density estimate to combine 29 U-Pb ages into a single record of flowstone growth intervals. We interpret these as major wet phases, when an increased water supply, more extensive vegetation cover and at least partially closed caves

allowed for undisturbed, semi-continuous growth of the flowstones. The intervening times represent substantially drier phases, during which fossils of hominins and other fossils accumulated in open caves. Fossil preservation, restricted to drier intervals, thus biases the view of hominin evolutionary history and behaviour, and places the hominins in a community of comparatively dry-adapted fauna. Although the periods of cave closure leave temporal gaps in the South African fossil record, the flowstones themselves provide valuable insights into both local and pan-African climate variability.

## Aktuell

WITZE 2019

Alexandra Witze, *Earth's magnetic field is acting up.* [nature](#) **565** (2019), 143–144.

Erratic motion of north magnetic pole forces update to model that aids global navigation.

## Amerika

FAUSTO 2018

Carlos Fausto & Eduardo G. Neves, *Was there ever a Neolithic in the Neotropics? Plant familiarisation and biodiversity in the Amazon.* [Antiquity](#) **92** (2018), 1604–1618.

The Amazon is one of the few independent centres of plant domestication in the world, yet archaeological and ethnographic evidence suggest a relatively recent transition to agriculture there. In order to make sense of this time lag, the authors propose the use of the concept of 'familiarisation' instead of 'domestication', to explain Amazonian plant management, and the long-term relationship between plants and people in the region. This concept allows them to cast a fresh eye over ancient and contemporary patterns of plant cultivation and management that may be distinct to the ones described for the Old World.

Keywords: Amazonia | plant domestication | cultivation | familiarisation

## Bibel

DERSHOWITZ 2017

Idan Dershowitz, *Revealing Nakedness and Concealing Homosexual Intercourse, Legal and Lexical Evolution in Leviticus 18.* [Hebrew Bible and Ancient Israel](#) **6** (2017), 510–526.

The list of forbidden unions in Leviticus 18 reflects comprehensive revision that obscures its original character. The motive for reworking this passage was to reverse the original text's implicit sanctioning of male same-sex intercourse. This conclusion finds support in additional biblical and ancient Near Eastern texts.

Keywords: Homosexuality | Sodomy | LGBTQ | Bible | Abomination

DESSAUER 1887

Julius Dessauer, *רש"י על התורה, Der Raschi-Kommentar zu den fünf Büchern Moses.* (Budapest 1887).

DESSAUER 1905

Julius Dessauer, *Der Pentateuch die fünf Bücher Mosche, Nebst dem Raschi-Commentare punktirt, leichtfasslich übersetzt und mit vielen erklärenden Anmerkungen versehen.* (Budapest <sup>2</sup>1905).

## Biologie Mathematik

LEVI 2019

Taal Levi, Michael Barfield, Shane Barrantes, Christopher Sullivan, Robert D. Holt & John Terborgh, *Tropical forests can maintain hyper-diversity because of enemies.* [PNAS 116 \(2019\), 581–586.](#)

[pnas116-00581-Supplement.pdf](#)

Explaining the maintenance of tropical forest diversity under the countervailing forces of drift and competition poses a major challenge to ecological theory. Janzen-Connell effects, in which host-specific natural enemies restrict the recruitment of juveniles near conspecific adults, provide a potential mechanism. Janzen-Connell is strongly supported empirically, but existing theory does not address the stable coexistence of hundreds of species. Here we use high-performance computing and analytical models to demonstrate that tropical forest diversity can be maintained nearly indefinitely in a prolonged state of transient dynamics due to distance-responsive natural enemies. Further, we show that Janzen-Connell effects lead to community regulation of diversity by imposing a diversity-dependent cost to commonness and benefit to rarity. The resulting species-area and rank-abundance relationships are consistent with empirical results. Diversity maintenance over long time spans does not require dispersal from an external metacommunity, speciation, or resource niche partitioning, only a small zone around conspecific adults in which saplings fail to recruit. We conclude that the Janzen-Connell mechanism can explain the maintenance of tropical tree diversity while not precluding the operation of other nichebased mechanisms such as resource partitioning.

**Keywords:** niche theory | neutral theory | ecological drift | Janzen-Connell | biodiversity

**Significance:** Biologists have long sought to explain how tropical forests can support as many as 1,000 tree species at a single site. Such high diversity presents a paradox in that two well-documented mechanisms, competition and drift, both erode diversity over time. Much imagination has gone into the quest to find a countervailing force of sufficient strength to counterbalance competition and drift. We show here that the 48-year-old Janzen-Connell mechanism, in which natural enemies restrict tree recruitment near conspecific adults, is capable of maintaining high levels of diversity indefinitely via a stabilizing mechanism that favors rare species and hinders common ones. Diversity maintenance requires only a small zone around conspecific adults in which saplings fail to recruit.

## Datierung

FANTUZZI 2011

Tiziano Fantuzzi, *The debate on the Absolute Chronology for the End of the Late Bronze Age and the Beginning of the Early Iron Age in Greece in its Mediterranean Context.* [unknown \(2011\), preprint, 1–16.](#)

All these sources of uncertainty are at the base of the present debate between the “traditional” Isrealian and Levantine chronology (that dates the first arrival of

Greek imported wares in the Levant to before 980 BC) and the ULC (that would postdate this import to the end of the X century BC) that at the moment seems unfillable.

In fact, if it is undeniable that both chronological hypotheses are faced with the potential ambiguity of the contexts used for building an interlinked chronology, and significant chronological shifts (whether postdating or predating) on contexts that are linked strictly to the Egyptian historical chronology for the N.K and T.I.P. periods would be hardly acceptable as they would require a complete revision of the preceding LBA international chronological framework (unless one inserts some 50 to 100 calendar years unattested in the king-lists), it is also clear that the available contextual information for the chronology of the Aegean – Levantine interrelations in the LBA/EIA transition is not sufficient to build a reliable inter-linked chronology, and more new data seem necessary before a conclusive opinion can be drawn on this subject.

## Klima

### KANIEWSKI 2010

D. Kaniewski, E. Paulissen, E. Van Campo, H. Weiss, T. Otto, J. Bretschneider & K. Van Lerberghe, *Late second – early first millennium BC abrupt climate changes in coastal Syria and their possible significance for the history of the Eastern Mediterranean*. [Quaternary Research](#) **74** (2010), 207–225.

The alluvial deposits near Gibala-Tell Tweini provide a unique record of environmental history and food availability estimates covering the Late Bronze Age and the Early Iron Age. The refined pollen-derived climatic proxy suggests that drier climatic conditions occurred in the Mediterranean belt of Syria from the late 13th/early 12th centuries BC to the 9th century BC. This period corresponds with the time frame of the Late Bronze Age collapse and the subsequent Dark Age. The abrupt climate change at the end of the Late Bronze Age caused region-wide crop failures, leading towards socio-economic crises and unsustainability, forcing regional habitat-tracking. Archaeological data show that the first conflagration of Gibala occurred simultaneously with the destruction of the capital city Ugarit currently dated between 1194 and 1175 BC. Gibala redeveloped shortly after this destruction, with large-scale urbanization visible in two main architectural phases during the Early Iron Age I. The later Iron Age I city was destroyed during a second conflagration, which is radiocarbon-dated at circa 2950 cal yr BP. The data from Gibala-Tell Tweini provide evidence in support of the drought hypothesis as a triggering factor behind the Late Bronze Age collapse in the Eastern Mediterranean.

Keywords: Abrupt climate change | Late Bronze Age collapse | Dark Age | Gibala-Tell Tweini | Ugarit kingdom | Syria

## Kultur

### NIKNAMI 2018

Kamal Aldin Niknami, Mohammad Hossein Taheri & Alireza Sardary, *Evidence of an early accounting system found at Tal-e Mash Karim, a Chalcolithic site in Iran*. [Documenta Praehistorica](#) **45** (2018), 100–107.

Investigating accounting systems and their progressive development during the prehistoric period is a critical issue in the recognition of human societies, their

communication, and the formation of inter- and intra-regional trade systems, which led to the invention of writing systems. The present study deals with the typology and classification of the Chalcolithic (Bakun) period. Numerical/ counting tokens have been discovered in Tal-e Mash Karim in Semirom district in Esfahan province in Iran. The cultural materials include thirty-two numerical tokens and a clay slab with tally marks. The numerical tokens may be divided into three main categories and seven subcategories: round and oval tokens for measuring agricultural products, and flat and disc-shaped tokens representing animals and food products. The discovery of a tallying slab beside the artefacts proves the existence of an early accounting system.

**Keywords:** accounting system | Chalcolithic period | numerical tokens | clay slab with tally marks | Tal-e Mash Karim

## Neolithikum

### GAASTRA 2018

Jane S. Gaastra, Haskel J. Greenfield & M. Vander Linden, *Gaining traction on cattle exploitation: zooarchaeological evidence from the Neolithic Western Balkans*. *Antiquity* **92** (2018), 1462–1477.

[Antiquity092-1462-Supplement.pdf](#)

The study of the exploitation of animals for traction in prehistoric Europe has been linked to the ‘secondary products revolution’. Such an approach, however, leaves little scope for identification of the less specialised exploitation of animals for traction during the European Neolithic. This study presents zooarchaeological evidence—in the form of sub-pathological alterations to cattle foot bones—for the exploitation of cattle for the occasional pulling of heavy loads, or ‘light’ traction. The analysis and systematic comparison of material from 11 Neolithic sites in the Western Balkans (c. 6100–4500 cal BC) provides the earliest direct evidence for the use of cattle for such a purpose.

**Keywords:** Balkans | Neolithic | traction | pathology | domestic cattle

### RÖSCH 1987

Manfred Rösch, *Der Mensch als landschaftsprägender Faktor des westlichen Bodenseegebietes seit dem späten Atlantikum*. *Eiszeitalter & Gegenwart* **37** (1987), 19–29.

Archeobotanical investigations are associated with a long-dated archeological project dealing with history of human colonisation during Neolithic time and Bronze age in South western Germany. These investigations enlarge the knowledge of human impact on environment and vice versa. Pollen Diagrams from kettle holes and from lake shore sediments of western lake Constance together with macrofossil analysis from cultural layers of Neolithic lake shore dwellings give reason of the fact, that already since Late Atlantic there was a close connection between human colonisation and economics and changes of terrestrial and limnic environments.

Eingebunden in ein längerfristiges archäologisches Projekt zur jungsteinzeitlichen und bronzezeitlichen Besiedlungsgeschichte im Alpenvorland tragen archäobotanische Untersuchungen zur Kenntnis der Wechselwirkung Mensch—Landschaft in dieser Zeit bei. Pollenanalysen in Toteislöchern und in der Flachwasserzone des Bodensees sowie Großrestanalysen an den Kulturschichten prähistorischer Feuchtbodensiedlungen geben Hinweise darauf, daß bereits ab dem späten Atlantikum ein enger Zusammenhang zwischen menschlicher Besiedlung und Wirtschaft und der Veränderung terrestrischer und limnischer Ökosysteme bestand.

Keywords: Prehistory | Atlanticum | Neolithic | Btonze age | pollen diagrams | macrofossil analysis | human colonisation | interrelationship | man-landscape

## Religion

CZACHESZ 2018

István Czachesz, *Armaments and Ornaments, Mate-Guarding and the Evolutionary Roots of Religion*. [Religion, Brain & Behavior \(2018\), preprint, 1–43. DOI:10.1080/2153599X.2018.1498014.](#)

This article explores the connection between sexual selection and religion, locating the origins of religious behavior in mate guarding after the transition to terrestrial life in *Homo erectus* 1.8 million years ago. An important consequence of the transition was the emergence of a polygynous, multiple-family social structure, which gave rise to mate guarding as a successful strategy. Further, as a result of sleeping on the ground, REM (rapid-eye-movement) phases were substantially extended. This produced novel dream experiences in *Homo erectus*, which is identified as the origin of proto-religious traits. The article argues that proto-religious dream experiences and related behavioral expressions gave males psychological and strategic advantages in keeping competitors away from their females. Given the strong selective pressure of male competition in polygynous mating systems, biological traits underlying proto-religion were successful in natural selection. Finally, it is suggested how subsequent evolutionary leaps in human cognition shaped religious thought and behavior and their role in sexual selection. The article is concluded by outlining how elements of the mate-guarding hypothesis could be tested and improved using empirical methods.

Keywords: origins of religion | sexual selection | mate guarding | terrestrial life | ground sleep | dreams | *Homo erectus*