

## References

### Anthropologie

COX 2019

Samantha L. Cox, Christopher B. Ruff, Robert M. Maier & Iain Mathieson, *Genetic contributions to variation in human stature in prehistoric Europe*. [PNAS 116 \(2019\), 21484–21492](#).

[pnas116-21484-Supplement1.pdf](#), [pnas116-21484-Supplement2.xlsx](#)

The relative contributions of genetics and environment to temporal and geographic variation in human height remain largely unknown. Ancient DNA has identified changes in genetic ancestry over time, but it is not clear whether those changes in ancestry are associated with changes in height. Here, we directly test whether changes over the past 38,000 y in European height predicted using DNA from 1,071 ancient individuals are consistent with changes observed in 1,159 skeletal remains from comparable populations. We show that the observed decrease in height between the Early Upper Paleolithic and the Mesolithic is qualitatively predicted by genetics. Similarly, both skeletal and genetic height remained constant between the Mesolithic and Neolithic and increased between the Neolithic and Bronze Age. Sitting height changes much less than standing height—consistent with genetic predictions—although genetics predicts a small post-Neolithic increase that is not observed in skeletal remains. Geographic variation in stature is also qualitatively consistent with genetic predictions, particularly with respect to latitude. Finally, we hypothesize that an observed decrease in genetic heel bone mineral density in the Neolithic reflects adaptation to the decreased mobility indicated by decreased femoral bending strength. This study provides a model for interpreting phenotypic changes predicted from ancient DNA and demonstrates how they can be combined with phenotypic measurements to understand the relative contribution of genetic and developmentally plastic responses to environmental change.

**Keywords:** stature | height | ancient DNA | evolution

**Significance:** Measurements of prehistoric human skeletal remains provide a record of changes in height and other anthropometric traits over time. Often, these changes are interpreted in terms of plastic developmental response to shifts in diet, climate, or other environmental factors. These changes can also be genetic in origin, but, until recently, it has been impossible to separate the effects of genetics and environment. Here, we use ancient DNA to directly estimate genetic changes in phenotypes and to identify changes driven not by genetics, but by environment. We show that changes over the past 35,000 y are largely predicted by genetics but also identify specific shifts that are more likely to be environmentally driven.

### Archäologie

BEN-YOSEF 2019

Erez Ben-Yosef, *Biblical Archaeology's Architectural Bias*. [Biblical Archaeology Review 45 \(2019\), vi, 54–55, 63](#).

Were it not for the copper production, simple forms of nomadic society or even an occupational gap would have dominated historical reconstructions of the 'Ar-

abah in the early Iron Age, resulting in a completely different understanding of early Edom.

Admittedly, documented cases of highly complex nomadic societies are rare in human history. But the time following the collapse of the Late Bronze Age civilizations was one of the most exceptional periods of history, one that offered a fertile ground for typically marginal groups to accumulate geopolitical power, witnessing also the rise of the tribal kingdoms of Israel and its neighbors.

This situation is evidently a manifestation of the common perception that nomads (or, for that matter, a mixed nomadic/sedentary population) could not have achieved a monarchy. However, the new understanding that biblical-era nomads could have developed complex societies ("kingdoms," in the biblical sense)—and that these societies would be largely inconspicuous in the archaeological record—calls into question the archaeology-based and ethnography-supported historical reconstructions of this period that are evidently skewed toward minimalist interpretations.

I don't mean to suggest that we ought to uncritically accept the historicity of biblical narratives related to nomads, but I would argue that archaeology cannot provide the answer.

#### EGGERT 2017

Manfred K. H. Eggert, *Materielle Kultur, Materialität, mise en valeur, Überlegungen zu Grundfragen der Kulturwissenschaften*. In: NICOLE RUPP, CHRISTINA BECK, GABRIELE FRANKE & KARL PETER WENDT (Hrsg.), *Winds of Change, Archaeological Contributions in Honour of Peter Breunig*. Frankfurter Archäologische Schriften 35 (Bonn 2017), 297–304.

Dieses Beispiel zeigt also, dass die Archäologie selbstverständlich der anderen Kulturwissenschaften bedarf, um ihre Funde und Befunde in den Rahmen zu stellen, in den sie gehören. Was wäre der Messingdraht ohne die frühen europäischen historischen Quellen, was ohne die frühe Ethnographie und was ohne die Ethnohistorie? Natürlich wären die archäologischen Rückschlüsse allein durchaus nicht nichts, aber um wie vieles mehr repräsentieren sie doch in einem möglichst umfassenden kulturwissenschaftlichen Gesamtzusammenhang, der letztlich an Schriftzeugnisse gebunden ist.

Umgekehrt gilt natürlich auch, dass im Schweigen beziehungsweise der Abwesenheit historischer, ethnographischer und ethnohistorischer Quellen allein die Archäologie einen Beitrag zu der hier exemplarisch behandelten Thematik zu liefern vermöchte.

#### REZI 2018

BOTOND REZI & RITA E. NÉMETH (Hrsg.), *Bronze Age Connectivity In The Carpathian Basin, Proceedings of the international colloquium from Târgu Mureş 13–15 October 2016*. Bibliotheca Mvsei Marisiensis, Series Archaeologica 15 (Târgu Mureş 2018).

## Biologie

#### FAITH 2019

J. Tyler Faith, John Rowan & Andrew Du, *Early hominins evolved within non-analog ecosystems*. *PNAS* **116** (2019), 21478–21483.

pnas116-21478-Supplement1.pdf, pnas116-21478-Supplement2.xlsx, pnas116-21478-Supplement3.xlsx

Present-day African ecosystems serve as referential models for conceptualizing the environmental context of early hominin evolution, but the degree to which modern ecosystems are representative of those in the past is unclear. A growing body of evidence from eastern Africa's rich and well-dated late Cenozoic fossil record documents communities of large-bodied mammalian herbivores with ecological structures differing dramatically from those of the present day, implying that modern communities may not be suitable analogs for the ancient ecosystems of hominin evolution. To determine when and why the ecological structure of eastern Africa's herbivore faunas came to resemble those of the present, here we analyze functional trait changes in a comprehensive dataset of 305 modern and fossil herbivore communities spanning the last  $\approx 7$  Myr. We show that nearly all communities prior to  $\approx 700$  ka were functionally non-analog, largely due to a greater richness of non-ruminants and megaherbivores (species  $> 1,000$  kg). The emergence of functionally modern communities precedes that of taxonomically modern communities by 100,000s of years, and can be attributed to the combined influence of Plio-Pleistocene C4 grassland expansion and pulses of aridity after  $\approx 1$  Ma. Given the disproportionate ecological impacts of large-bodied herbivores on factors such as vegetation structure, hydrology, and fire regimes, it follows that the vast majority of early hominin evolution transpired in the context of ecosystems that functioned unlike any today. Identifying how past ecosystems differed compositionally and functionally from those today is key to conceptualizing ancient African environments and testing ecological hypotheses of hominin evolution.

**Keywords:** functional traits | megaherbivore | non-analog faunas | paleoanthropology | paleoecology

**Significance:** Testing ecological hypotheses of human evolution requires an understanding of the ancient plant and animal communities within which our ancestors lived. Though present-day ecosystems provide the baseline for reconstructing the ecological context of human evolution, the extent to which modern ecosystems are representative of past ones is unknown. Through analyses of a fossil dataset spanning the last 7 Myr, we show that eastern African communities of large-bodied mammalian herbivores differed markedly from those today until  $\approx 700,000$  y ago. Because large herbivores are ecosystem engineers and shape biotic communities in ways that impact a wide variety of species, this implies that the vast majority of early human evolution transpired in the context of ecosystems that functioned unlike any known today.

## Judentum

BOHSTROM 2018

Philippe Bohstrom, *Ancient Judeans Wrote Torah Scrolls on Gazelle Hide, Archaeologists Find*. [Haaretz 2018, Aug. 19](#).

In the 1st century C.E., the Torah was written mainly on parchment made of sheep or goat skin. Later, leather would also be used. Part of the Dead Sea Scrolls, including the Book of Isaiah version found at Qumran, were written on bovine hide.

Apparently though gazelle hide was considered finer, and since gazelles hadn't been domesticated but had to be hunted, their pelt probably cost more. The villagers could have had a tidy sideline in selling the pelt after eating the animal.

Dr. Ram Bukhnik, a zooarchaeologist with the Kinneret Institute for Galilean Archaeology, notes that some of the Dead Sea Scrolls were written on parchments made from gazelle and ibex hides. "Jewish sources from later periods recommend

gazelle skins for parchments because they are soft and well-suited for writing on”, he says.

#### POOLE 1962

J. B. Poole & R. Reed, *The Preparation of Leather and Parchment by the Dead Sea Scrolls Community*. [Technology and Culture 3 \(1962\), 1–26](#).

In this paper we shall attempt to reconstruct the leather and parchment technology of the people who owned the Dead Sea scrolls and to relate this to their beliefs and practices. This study grew from a research project in the Department of Leather Industries, The University of Leeds, the aim of which was to clarify the nature, origin, techniques of manufacture, and the age of a number of blank scroll fragments kindly provided by the Jordanian Department of Antiquities. The investigations at Leeds were both historical and experimental; the latter, to be published in detail elsewhere, will be referred to here only when they are of direct relevance.

#### RENDSBURG 2019

Gary A. Rendsburg, *A Rare Torah in the Library of Congress*. [Biblical Archaeology Review 45 \(2019\), vi, 46–52](#).

Several features attest to the antiquity of this document. First, note that there is no attempt at left-justification. The lines are right-justified (recall that Hebrew reads from right-to-left), but the scribe did not adjust the letters or the spacing to create a left-justified text. Later Torah scrolls, from the Middle Ages down to the present day, create nice neat blocks of paragraphs, with both edges aligned, but not so with the Library of Congress Torah scroll sheet.

Second, later Jewish scribal tradition includes the custom of placing small crowns (called tagin, in Hebrew) over certain letters. The Library of Congress Torah scroll sheet, by contrast, does not follow this practice—another testimony to its hoary age.

In every which way, the Library of Congress Torah scroll sheet is a truly remarkable document. Dated to c. 1000 C.E., it is the oldest complete Torah scroll sheet totally legible by the naked eye (notwithstanding the qualification above regarding the London scroll sheet). Anyone who can read Hebrew can walk right up to this precious document and read aloud, with no difficulty whatsoever.

#### SCHUETZ 2019

Roman Schuetz, Janille M. Maragh, James C. Weaver, Ira Rabin & Admir Masic, *The Temple Scroll: Reconstructing an ancient manufacturing practice*. [Science Advances 5 \(2019\), eaaw7494](#). [DOI:10.1126/sciadv.aaw7494](#).

[SciAdv05-eaaw7494-Supplement.pdf](#)

The miraculously preserved 2000-year-old Dead Sea Scrolls, ancient texts of invaluable historical significance, were discovered in the mid-20th century in the caves of the Judean desert. The texts were mainly written on parchment and exhibit vast diversity in their states of preservation. One particular scroll, the 8-m-long Temple Scroll is especially notable because of its exceptional thinness and bright ivory color. The parchment has a layered structure, consisting of a collagenous base material and an atypical inorganic overlayer. We analyzed the chemistry of the inorganic layer using x-ray and Raman spectroscopies and discovered a variety of evaporitic sulfate salts. This points toward a unique ancient production technology in which the parchment was modified through the addition of the inorganic layer as a writing surface. Furthermore, understanding the properties of

these minerals is particularly critical for the development of suitable conservation methods for the preservation of these invaluable historical documents.

## Klima

CAVANAUGH 2019

Kyle C. Cavanaugh et al., *Climate-driven regime shifts in a mangrove–salt marsh ecotone over the past 250 years*. *PNAS* **116** (2019), 21602–21608.

[pnas116-21602-Supplement.pdf](#)

Climate change is driving the tropicalization of temperate ecosystems by shifting the range edges of numerous species poleward. Over the past few decades, mangroves have rapidly displaced salt marshes near multiple poleward mangrove range limits, including in northeast Florida. It is uncertain whether such mangrove expansions are due to anthropogenic climate change or natural climate variability. We combined historical accounts from books, personal journals, scientific articles, logbooks, photographs, and maps with climate data to show that the current ecotone between mangroves and salt marshes in northeast Florida has shifted between mangrove and salt marsh dominance at least 6 times between the late 1700s and 2017 due to decadal-scale fluctuations in the frequency and intensity of extreme cold events. Model projections of daily minimum temperature from 2000 through 2100 indicate an increase in annual minimum temperature by 0.5 °C/decade. Thus, although recent mangrove range expansion should indeed be placed into a broader historical context of an oscillating system, climate projections suggest that the recent trend may represent a more permanent regime shift due to the effects of climate change.

**Keywords:** mangroves | climate change | regime shift | historical ecology

Kyle C. Cavanaugh, Emily M. Dangremond, Cheryl L. Doughty, A. Park Williams, John D. Parker, Matthew A. Hayes, Wilfrid Rodriguez & Ilka C. Feller

**Significance:** In recent years, tropical species have expanded poleward into temperate regions. For example, along the east coast of North America, mangroves have expanded into salt marshes in response to decreases in the frequency of extreme freezes. But questions remain about how mangrove abundance has changed over longer timescales and the role of anthropogenic climate change. We used a mixed methods approach to document a series of climate-driven shifts in mangrove abundance over the past 250 y. However, climate model projections suggest warming may push this fluctuating system toward a persistent state of mangrove dominance. This historical approach can be applied to a variety of ecosystems to place the effects of climate change in the context of long-term natural climate variability.

## Metallzeiten

BERLIN 2019

Andrea M. Berlin, *Zenon's Flour, Grains of Truth from Tel Kedesh*. *Biblical Archaeology Review* **45** (2019), vi, 34–40.

*Triticum aestivum* is attested in Egyptian archaeological contexts from the later first millennium B.C.E., but it disappears after the first century C.E. This chronology and distribution of *Triticum aestivum* are consistent with what little we can glean about Syrian wheat. Additionally, there is one final point that may explain the strain's decided unpopularity with native Egyptians.

In antiquity, the average person relied on bread, which constituted about 75 percent of the calories in the average diet. *Triticum durum* has very little gluten, and so it makes a low, thick, chewy bread. *Triticum aestivum*, on the other hand, has a high gluten content. When combined with yeast and kneaded, it produces a light, airy loaf.

A dietary regime dependent on bread would not be well served by *Triticum aestivum* since the end product would have been a much less filling staple than the flat bread produced from durum wheat. This fundamental difference might explain why Egyptians rejected Syrian wheat.

#### KIENLIN 2018

Tobias L. Kienlin, *A Hero is a Hero is a . . . ? On Homer and Bronze Age Social Modelling*. In: BOTOND REZI & RITA E. NÉMETH (Hrsg.), *Bronze Age Connectivity In The Carpathian Basin, Proceedings of the international colloquium from Târgu Mureş 13–15 October 2016*. Bibliotheca Mvsei Marisiensis, Series Archaeologica 15 (Târgu Mureş 2018), 19–31.

A hero, from the Greek term *ἦρος*, is not a social fact. Rather, like the notorious chiefdoms and chiefs that befell Bronze Age Archaeology a couple of decades ago, it is an idealised social type which is condensed from a more complex reality, past or present. Just like chiefdoms, then, the notion of the ‘hero’ may affect archaeological argument in two closely related ways: Firstly, since these are types of socio-political leadership we are invited to reduce a potentially more diverse archaeological reality, i.e. our understandings of the material remains of past social practice and discourse, to a reductionist version of indigenous or historical social structure –this is, for example, how Hawaiian chiefdoms were wrongly imposed upon us as a universal stage of social evolution, when in fact they represent an extreme and historically specific example of ‘political economy’ (Earle 2002). Secondly, we are thinking and analysing, then, in quite different prehistoric situations in terms of the same broad and supposedly universal categories. Eventually, we are at risk to use such concepts to cover the longue duree and to bridge the gap between socially and culturally distinct societies widely set apart in space and/or in time in order to produce the unified Bronze Age narrative commonly accepted.

Keywords: Homer | Social Archaeology | Bronze Age | Iron Age | Material Culture | Text

#### PICCOLINI 2018

Tim Piccolini & Tobias L. Kienlin, *The Hero’s Sword, On Local Appropriation and Social ‘Institutions’*. In: BOTOND REZI & RITA E. NÉMETH (Hrsg.), *Bronze Age Connectivity In The Carpathian Basin, Proceedings of the international colloquium from Târgu Mureş 13–15 October 2016*. Bibliotheca Mvsei Marisiensis, Series Archaeologica 15 (Târgu Mureş 2018), 305–315.

In this study, we have focused on the various options for action in dealing with swords in order to challenge the idea of a uniform, pan-European meaning of the sword and the uniform perception of the ‘warrior’. The comparison of sword depositions, in terms of grave and hoard finds, shows substantial differences, which were considered more accurately in the context of a biographical comparison of warriors and swords. It has been stated that the appearance of swords in graves and hoards indicates heterogeneous biographies of swords, warriors and their interlinkages in different parts of Europe. On this basis, a division into parallel and

divided biographies was made, which allowed different actors to be determined for the deposition of swords, as well as to discuss the concrete dealing with swords and their embedding in possible contexts of action. Thereby, we followed the premise that the appropriation of things, whether by exchange or emulation, always leads to a local cultural transformation of the meanings and ideological contents of these objects. This is due to the fact of the “authentic dealing with the non-authentic”, as F. Kramer called it (translation by the authors, cited in Streck 1987, 36). The contextual variability to be observed results from different social practices and their specific materiality. A uniform meaning ascribed to the sword, from which a pan-European institution of the warrior could be derived, must be negated against this background. What comes to light here is the local ‘appropriation’, a specific transformation or ‘translation’ of possible external influences. We see interwoven biographies of swords and males, which, however, dissolve at different stages. While the biographies in the north and south are largely running parallel, they separate in the intervening area earlier. Such differences in the association of males and swords most likely point to different perceptions of the ‘warrior’ as such, and more specifically to divergent notions of what it meant being a ‘warrior’ throughout or at different stages of one’s life. This variability in the association of males and swords is not a chance effect of some unknown forces that accidentally affect the archaeological record. Nor is, for example, the systematic absence of swords from graves to be ignored because social institutions like the ‘warrior’ purportedly may have existed independently of its specific material manifestations. Rather, such divergent choices made and valuations are just one example of the different notions of personhood and corresponding options for social action we have to be aware of throughout Bronze Age Europe. We have to take an interest in the variability of the archaeological record in time and space; an interest, that is to say, in the different material conditions available for social action, the different perceptions and meanings attributed to material culture. Against this background it is highly unlikely that the same or just similar objects are representing anything like pan-European Bronze Age social ‘institutions’.

Keywords: warrior | cross-cultural interaction | center-periphery perspective | pan-European social institutions | biographical approach

## Methoden

CLAUSS 1974

Günter Clauß & Heinz Ebner, *Grundlagen der Statistik, Für Soziologen, Pädagogen, Psychologen und Mediziner*. (Berlin <sup>6</sup>1978).

SHENNAN 1988

Stephen Shennan, *Quantifying Archaeology*. (Edinburgh <sup>2</sup>1990).

## Neolithikum

HOFMANN 2019

Robert Hofmann et al., *Governing Tripolye: Integrative architecture in Tripolye settlements*. *PLoS ONE* **14** (2019), e222243. DOI:10.1371/journal.pone.0222243.

pone14-e0222243-Supplement1.docx, pone14-e0222243-Supplement2.docx, pone14-e0222243-Supplement3.docx

Recently, high-resolution magnetometry surveys have led to the discovery of a special category of buildings—so-called ‘mega-structures’—situated in highly visible positions in the public space of Tripolye giant-settlements of the late 5th and first half of the 4th millennium BCE. In this paper we explore what these buildings actually are and how they can contribute to the understanding of the development of social space in Tripolye giant-settlements. For this investigation, we linked newly obtained excavation data from the giant-settlement Maidanetske, Ukraine, with a much larger sample of such buildings from magnetic plans obtained in the region between the Carpathian foothills and the Dnieper River. Accordingly, Tripolye mega-structures represent a particular kind of integrative building documented in many nonranked ethnographic contexts. Based on our results we are interpreting that these buildings were used for various ritual and non-ritual activities, joint decision-making, and the storage and consumption of surplus. In Tripolye giant-settlements at least three different categories of mega-structures could be identified which most likely represent different levels of sociopolitical integration and decision-making. The emergence of this hierarchical system of high-level integrative buildings for the whole community and different low-level integrative architectures for certain segments of local communities was related to the rise of Tripolye mega-sites. The presence of different integrative levels most likely reflects the fusion of different previously independent communities in the giant-settlements. Later in the mega-site development, we observe how low-level integrative buildings increasingly lose their importance indicated by shrinking size and, finally, their disappearance. This observation might indicate that the power which was previously distributed across the community was transferred to a central institution. It is argued that the non-acceptance of this concentration of power and the decline of lower decision-making levels might be a crucial factor for the disintegration of Tripolye giant-settlements around 3600 BCE.

Robert Hofmann, Johannes Müller, Liudmyla Shatilo, Mykhailo Videiko, René Ohlrau, Vitalii Rud, Nataliia Burdo, Marta Dal Corso, Stefan Dreibrodt & Wiebke Kirleis

## Story or Book

CARGILL 2019

Robert R. Cargill, *From Shalem to Jerusalem*. [Biblical Archaeology Review](#) 45 (2019), vi, 6.

Controversially, I argue that Melchizedek was the king of Sodom. In two of the chapters, however, I found my research leading me to an equally controversial topic involving Jerusalem.

Robert R. Cargill. *Melchizedek, King of Sodom: How Scribes Invented the Biblical Priest-King*. Oxford: Oxford Univ. Press, 2019.

Some scholars have countered that the “URU” prefix on these early names, which became the “Yeru-” beginning of Yerushalayim, was simply the vestige of the Akkadian determinative—a symbol used before a personal name to indicate that it was the name of a city and not of a people or deity. The problem with this argument is that the Akkadian determinative prefix “URU” is not affixed directly to the name “Shalem,” but appears in addition to the signs for Ú-Ru-Sa-Lim, rendering a lengthy, polysyllabic name (URU)Ú-Ru-Sa-Lim. Thus Jerusalem’s name was never simply Shalem; it was always longer.

I translate Psalm 76:2 as, “His tent was in Shalem, but his residence is in Zion,” and argue that the poem is not synonymous parallelism, with Shalem and Zion referring to the same location. Instead, I argue that Psalm 76:2 is a chronological reference to the progress made by the Ark of the Covenant from its northern



Samaritan locale in Shiloh near Shalem, where it resided in a tabernacle under the supervision of the priest Eli and his family, to Jerusalem, where it ultimately resided within the Temple.

I then discuss the explicit claim in Genesis 33:18 that states, “And Jacob came to Shalem, a city (within the jurisdiction) of Shechem, which is in the land of Canaan.” I also explain that most subsequent ancient translations of this verse substituted the word “safely” in place of the name “Shalem” in an effort to obscure the reference to Shalem near Shechem—a trend that grew throughout the Jewish interpretative tradition of the Second Temple period.