

## References

### Afrika

CHIRIKURE 2018

Shadreck Chirikure, Robert Nyamushosho, Foreman Bandama & Collet Dandara, *Elites and commoners at Great Zimbabwe, Archaeological and ethnographic insights on social power*. [Antiquity 92 \(2018\), 1056–1075](#).

Archaeological indicators of inequality at major historic centres of power have long been poorly understood. This paper is the first to address the archaeology of class and inequality at Great Zimbabwe (AD 1000–1700) from an African-centred viewpoint. Data from new excavations, combined with insights from Shona philosophy, practice and ethnography, suggest that the categories of ‘elite’ and ‘commoner’ were situational and transient, and that they require a more robust theorisation than that currently adopted for the site. The results provide a valuable study for the comparative archaeology of ancient cities, differing in many ways from established interpretive frameworks in global archaeology.

Keywords: Great Zimbabwe | elites | commoners | inequality | Shona philosophy

MARSHALL 2018

Fiona Marshall et al., *Ancient herders enriched and restructured African grasslands*. [nature 561 \(2018\), 387–390](#).

[n561-0387-Supplement1.pdf](#), [n561-0387-Supplement2.xlsx](#), [n561-0387-Supplement3.xlsx](#)

Fiona Marshall, Rachel E. B. Reid, Steven Goldstein, Michael Storozum, Andrew Wreschnig, Lorraine Hu, Purity Kiura, Ruth Shahack-Gross & Stanley H. Ambrose

Grasslands are one of the world’s most extensive terrestrial biomes and are central to the survival of herders, their livestock and diverse communities of large wild mammals<sup>1–3</sup>. In Africa, tropical soils are predominantly nutrient-limited<sup>4–6</sup> but productive grassy patches in wooded grassland savannah ecosystems<sup>2,4</sup> grow on fertile soils created by geologic and edaphic factors, megafauna, fire and termites<sup>4–6</sup>. Mobile pastoralists also create soil-fertility hotspots by penning their herds at night, which concentrates excrement—and thus nutrients—from grazing of the surrounding savannahs<sup>7–11</sup>. Historical anthropogenic hotspots produce high-quality forage, attract wildlife and increase spatial heterogeneity in African savannahs<sup>4,12–15</sup>. Archaeological research suggests this effect extends back at least 1,000 years<sup>16–19</sup> but little is known about nutrient persistence at millennial scales. Here we use chemical, isotopic and sedimentary analyses to show high nutrient and <sup>15</sup>N enrichment in on-site degraded dung deposits relative to off-site soils at five Pastoral Neolithic<sup>20</sup> sites (radiocarbon dated to between 3,700 and 1,550 calibrated years before present (cal. bp)). This study demonstrates the longevity of nutrient hotspots and the long-term legacy of ancient herders, whose settlements enriched and diversified African savannah landscapes over three millennia.

## Archäologie

NUNN 2012

Astrid Nunn, *Der Alte Orient, Geschichte und Archäologie*. (Darmstadt 2012).

## Bibel

BECK 1995

ASTRID B. BECK, ANDREW H. BARTELT, PAUL R. RAABE & CHRIS A. FRANKE (Hrsg.), *Fortunate the Eyes That See, Essays in honor of David Noel Freedman in celebration of his seventieth birthday*. (Grand Rapids 1995).

GARFINKEL 2016

Ido Garfinkel, *The Shaft of Whose Spear Was Like a Weaver's Beam? Another Suggestion*. [Zeitschrift für die Alttestamentliche Wissenschaft 128 \(2016\), 688–694](#).

The biblical expression “the shaft of whose spear was like a weaver’s beam” is widely known as part of the description of Goliath’s arms before the battle with David in the Valley of Elah (1Sam 17:7). It appears again in the Bible, however, in a short story about another Israelite hero who killed a Philistine named Goliath, Elhanan son of Jaare-Organ (2Sam 21:19). In this article I claim that, not only is the shorter, less well known version the original, as many have claimed before me, but I also suggest a new understanding of the term “weaver’s beam”. Rather than understanding it as part of Goliath’s marvelous spear, I see it in fact as an improvised work tool used by the Israelite, Elhanan, in order to kill the Philistine in battle. This new understanding places this story together with other traditions about improvised weapons in the Books of Judges and Samuel.

Der biblische Ausdruck “der Schaft seines Speies war wie ein Weberbaum” ist bekannt als Teil der Beschreibung von Goliaths Waffen vor dem Kampf mit David im Tal von Elah (1 Sam 17,7). Er begegnet allerdings noch einmal in der Bibel, in einer kurzen Geschichte ber einen anderen israelitischen Helden namens Elhanan, den Sohn Jairs, der einen Philister namens Goliath ttet (2 Sam 21,19). In diesem Artikel mchte ich nicht nur geltend machen, dass die krzere, weniger bekannte Version das Original darstellt, wie es vor mir bereits viele behauptet haben. Sondern ich schlage auch ein neues Verstndnis des Ausdrucks “Weberbaum” vor. Statt diesen Gegenstand als Teil von Goliaths Speer zu verstehen, betrachte ich ihn als ein improvisiertes Werkzeug, das von dem Israeliten Elhanan verwendet wird, um den Philister in der Schlacht zu tten. Dieses neue Verstndnis rckt die Geschichte in die Nhe anderer Traditionen ber improvisierte Waffen in den Bchern Richter und Samuel.

GOTTLIEB 2010

Yulia Gottlieb, *The Advent of the Age of Iron in the Land of Israel, A Review and Reassessment*. [Tel Aviv: Archaeology 37 \(2010\), 89–110](#).

The article examines the evidence for metal-working in the iron I and iron IIA, as well as in the iron IIB in the land of Israel. The comparative analysis of material from northern valley sites and the Beersheba Valley reveals a discrepancy in the progress of technological development: by the early Iron IIA, the iron industry in the south was already relatively well developed, while in the north it remained

largely ignored and smiths continued to work in bronze. A striking case is the disparity in the metal-working of the contemporaneous early iron IIA Beersheba valley sites of Tel Masos II on the one hand and Arad XII and Beersheba VII on the other. All three sites belonged to the same settlement entity and were located in equal proximity to the Feinan copper production centre. But while Tel Masos II shows extensive evidence of copper-working, which fits its involvement in the Arabah copper trade, Arad XII and Beersheba VII feature marks of an iron-dominated metal industry.

Keywords: Iron and copper working | Iron Age | Beersheba Valley

## Datierung

MÜHLENBRUCH 2017

Tobias Mühlenbruch, *The absolute dating of the volcanic eruption of Santorini/Thera (periferia South Aegean/GR), An alternative perspective*. *Prähistorische Zeitschrift* **92** (2017), 92–107.

This article presents an alternative approach to dating the volcanic eruption of Santorini, which is important for the absolute chronology of the entire Eastern Mediterranean, based on two aspects:

1. the characteristics of archaeological periods as well as the methods of assigning dates to them
2. the quality of the archaeological features used for synchronisation, along with the need to consider the time between the production of an object and its deposition, especially in terms of influences and for imported objects.

As a result, the volcanic eruption need not have taken place late or at the end of LM IA. The eruption may have taken place in  $1613 \pm 13$  BC, that is, the  $14C$  date obtained for a branch of an olive-tree from Santorini; this places it during LM IA, while LM IA nonetheless overlapped with the beginning of the New Kingdom in Egypt, traditionally dated to c. 1540 BC. In addition, we should bear in mind that the dates for the reigns of the pharaohs in the early New Kingdom should be regarded with a certain amount of flexibility. – The approach presented here is applied to periods up to the end of the Aegean Bronze Age.

Keywords: Aegean Bronze Age | volcanic eruption Santorini/Thera | Late Bronze Age | absolute chronology | “high” and “low” chronology | Egyptian chronology | methodology

Im Rahmen der Diskussion um die Datierung des Vulkanausbruchs von Santorin/Thera und der damit verbundenen Implikationen für die absolute Chronologie des Ostmittelmeerraumes wird eine alternative Herangehensweise vorgeschlagen, die in erster Linie von zwei Aspekten ausgeht:

1. den spezifischen Charakteristika archaischer Zeiteinheiten sowie den Möglichkeiten, sie zu datieren
2. der Qualität archaischer Befunde für Synchronisierungen sowie der mit Einflüssen und Importen verbundenen Laufzeit.

Als Ergebnis muss der Vulkanausbruch nicht spät oder am Ende von SM IA erfolgt sein, kann er gemäß der  $14C$  Datierung eines Olivenbaumastes von Santorin  $1613 \pm 13$  v. Chr. allgemein in SM IA stattgefunden haben, wobei SM IA sich trotzdem mit dem Beginn des Neuen Reiches in Ägypten überschneiden haben mag, traditionell um 1540 v. Chr. datiert. Ergänzend sei nämlich darauf hingewiesen, dass auch die Regierungsdaten der Pharaonen mit gewissen Toleranzbereichen zu sehen sind. – Der entsprechende Ansatz wird anschließend für die Zeit bis zum Ende der ägäischen Bronzezeit angewandt.

Keywords: Ägäische Bronzezeit | Vulkanausbruch Santorin/Thera | Spätbronzezeit | absolute Chronologie | “hohe” und “niedrige” Chronologie | ägyptische Chronologie | Methodendiskussion

## Grabung

NA'AMAN 2012

Nadav Na'aman, *Hirbet ed-Dawwāra, A Philistine Stronghold on the Benjamin Desert Fringe*. [Zeitschrift des Deutschen Palästina-Vereins 128 \(2012\), 1–9](#).

The article discusses the late Iron Age I – early Iron Age IIA site of Hirbet ed-Dawwara, located on the fringe of the desert in the Benjamin district. The site has massive walls and is unique among the highland settlements built during this period. In light of its unique features (e. g., a small number of silos and sickle blades; a fragment of a lion-headed cup) it is suggested that Hirbet ed-Dawwara was a Philistine stronghold erected in order to supervise the conquered Benjaminite settlements on its west and the road to the Jordan Valley on its east. In light of this conclusion, the story of Saul's wars with the Philistines is critically analyzed and the possible position of the site in the related chain of events closely examined.

## Kultur

GOLDWASSER 2010

Orly Goldwasser, *How the Alphabet Was Born from Hieroglyphs*. [Biblical Archaeology Review 36 \(2010\), ii, 38–50, 74](#).

The alphabet was invented only once. All alphabetic scripts derive from this original one, which we may call the Serabit alphabetic script. The invention of the alphabet altered, in the long run, the lives of millions of people for millennia. It was not invented by learned scribes in schools, however. It was the child of a few great minds—perhaps one—who lived among the Canaanites working in the turquoise mines of Sinai. Egyptian hieroglyphs, however, made this invention possible. Through the invention of the alphabet, the long-lost ancient Egyptian hieroglyphs secretly live within our own script to this day.

## Mathematik

KRINNER 2018

Gerhard Krinner & Mark G. Flanner, *Striking stationarity of large-scale climate model bias patterns under strong climate change*. [PNAS 115 \(2018\), 9462–9466](#).

[pnas115-09462-Supplement.pdf](#)

**Conclusion:** In summary, the use of current-generation coupled models for projections of climate change on centennial time scales is based on the fundamental but yet unproven hypothesis that, although current climate model biases are of the same order of magnitude as the expected climate change itself (2), the simulated climate change signal as such is largely credible (34, 36). The results presented here provide altogether clear evidence for a strong and consistent stationarity of a wide range of large-scale mean tropospheric circulation, energy, and water-cycle

climate model bias patterns under substantial climate change. This is a compelling and as-yet-missing justification for using current-generation coupled climate models for climate change projections.

**Summary:** Because all climate models exhibit biases, their use for assessing future climate change requires implicitly assuming or explicitly postulating that the biases are stationary or vary predictably. This hypothesis, however, has not been, and cannot be, tested directly. This work shows that under very large climate change the bias patterns of key climate variables exhibit a striking degree of stationarity. Using only correlation with a model's preindustrial bias pattern, a model's 4xCO<sub>2</sub> bias pattern is objectively and correctly identified among a large model ensemble in almost all cases. This outcome would be exceedingly improbable if bias patterns were independent of climate state. A similar result is also found for bias patterns in two historical periods. This provides compelling and heretofore missing justification for using such models to quantify climate perturbation patterns and for selecting wellperforming models for regional downscaling. Furthermore, it opens the way to extending bias corrections to perturbed states, substantially broadening the range of justified applications of climate models.

**Keywords:** climate modeling | climate change | model biases

**Significance:** The typical magnitude of coupled climate model biases is similar to the magnitude of the climate change that is expected on a centennial time scale. Using climate models for assessing future climate change therefore relies on the hypothesis that these biases are stationary or vary predictably. This hypothesis, however, has not been, and cannot be, tested directly. We compare the biases of individual models with respect to a multimodel mean for two very different climate states. Our comparison shows that under very large climate change the bias patterns of key climate variables do not change substantially. This provides a justification for using state-of-the-art climate models to simulate climate change and allows extending the range of climate model applications.

## Mesolithikum

OXENHAM 2018

Marc F. Oxenham et al., *Between foraging and farming, Strategic responses to the Holocene Thermal Maximum in Southeast Asia*. [Antiquity](#) **92** (2018), 940–957.

Marc F. Oxenham, Hiep Hoang Trinh, Anna Willis Rebecca K. Jones, Kathryn Domett, Cristina Castillo, Rachel Wood, Peter Bellwood, Monica Tromp, Ainslee Kells, Philip Piper Son Thanh Pham, Hirofumi Matsumura & Hallie Buckley

Large, 'complex' pre-Neolithic hunter-gatherer communities thrived in southern China and northern Vietnam, contemporaneous with the expansion of farming. Research at Con Co Ngua in Vietnam suggests that such huntergatherer populations shared characteristics with early farming communities: high disease loads, pottery, complex mortuary practices and access to stable sources of carbohydrates and protein. The substantive difference was in the use of domesticated plants and animals—effectively representing alternative responses to optimal climatic conditions. The work here suggests that the supposed correlation between farming and a decline in health may need to be reassessed.

**Keywords:** Southeast Asia | Con Co Ngua | hunter-gatherers | domestication | palaeopathology

Several sources of proxy data demonstrate that significant temperature rises (the Holocene Thermal Maximum) occurred between 11 000 and 5000 ya, peaking 7200–6000 ya in China, where surface temperatures were 1–4°C higher and rainfall 40–100 per cent greater than today.

Da But and Dingsishan communities were adapting to optimal hunter-gatherer conditions probably mediated by the Holocene Thermal Maximum. They lived in a climate warmer than now, which presumably favoured the growth and spread of economically valuable plants, such as Canarium, sago and root crops, in quantities that could sustain large sedentary hunter-gatherer populations. Whether some form of vege culture or wild plant management was occurring remains unknown, but we think it probable. Following the Holocene Thermal Maximum, lower sea levels, coastal progradation (or seaward extension of the coast) and declining temperature and rainfall presumably had a negative impact on these communities and their resources.

## Metallzeiten

MELLER 2018

Harald Meller & Kai Michel, *Das Reich der Himmelscheibe*. *Geo* **2018**, x, 54–76.

In der Bronzezeit lebten im Herzen Europas nur Barbaren? Weit gefehlt! Die Entschlüsselung der Scheibe von Nebra hat Forscher auf die Spur einer verschollenen Kultur geführt. Sie kann sich mit den bedeutenden Zivilisationen des Altertums messen. Ihr Name: die Kultur von Aunjetitz

Einer ihrer Entdecker, der Archäologe Harald Meller, und der Wissenschaftsjournalist Kai Michel entwerfen nun erstmals ein Gesamtbild des mächtigen Reiches

## Neolithikum

GRON 2018

Kurt J. Gron & Lasse Sørensen, *Cultural and economic negotiation, A new perspective on the Neolithic Transition of Southern Scandinavia*. *Antiquity* **92** (2018), 958–974.

The diversity of archaeological evidence for the adoption of farming in Northern Europe has led to competing hypotheses about this critical shift in subsistence strategy. Through a review of the archaeological material alongside ethnographic evidence, we reconsider the Neolithic Transition in Southern Scandinavia, and argue for both continuity and change during the early Funnel Beaker Culture (c. 4000–3500 cal BC). A new model is proposed for understanding the processes of regional transition—one which allows for compromise between the dominant explanatory frameworks. We conclude that the first centuries of the Scandinavian Neolithic saw cultural and economic negotiation between the last foragers and the first farmers. This has major implications for the understanding of agricultural origins in Northern Europe.

Keywords: Scandinavia | Neolithic Transition | Ertebølle Culture | Funnel Beaker Culture