

References

Aktuell

BETSCH 2020

Cornelia Betsch, Lars Korn, Philipp Sprengholz, Lisa Felgendreiff, Sarah Eitze, Philipp Schmid & Robert Böhm, *Social and behavioral consequences of mask policies during the COVID-19 pandemic*. [PNAS 117 \(2020\), 21851–21853](#). DOI:10.1073/pnas.2011674117.

Mandatory and voluntary mask policies may have yet unknown social and behavioral consequences related to the effectiveness of the measure, stigmatization, and perceived fairness. Serial crosssectional data (April 14 to May 26, 2020) from nearly 7,000 German participants demonstrate that implementing a mandatory policy increased actual compliance despite moderate acceptance; mask wearing correlated positively with other protective behaviors. A preregistered experiment (n = 925) further indicates that a voluntary policy would likely lead to insufficient compliance, would be perceived as less fair, and could intensify stigmatization. A mandatory policy appears to be an effective, fair, and socially responsible solution to curb transmissions of airborne viruses.

Keywords: COVID-19 | policy | face masks | pandemic

CALLAWAY 2020

Ewen Callaway, *Making Sense of Coronavirus Mutations*. [nature 585 \(2020\), 174–177](#).

Different SARS-CoV-2 strains haven't yet had a major impact on the course of the pandemic — but they might in future.

GOLDSTEIN 2020

Joshua R. Goldstein & Ronald D. Lee, *Demographic perspectives on the mortality of COVID-19 and other epidemics*. [PNAS 117 \(2020\), 22035–22041](#). DOI:10.1073/pnas.2006392117.

To put estimates of COVID-19 mortality into perspective, we estimate age-specific mortality for an epidemic claiming for illustrative purposes 1 million US lives, with results approximately scalable over a broad range of deaths. We calculate the impact on period life expectancy (down 2.94 y) and remaining life years (11.7 y per death). Avoiding 1.75 million deaths or 20.5 trillion person years of life lost would be valued at \$10.2 to \$17.5 trillion. The age patterns of COVID-19 mortality in other countries are quite similar and increase at rates close to each country's rate for all-cause mortality. The scenario of 1 million COVID-19 deaths is similar in scale to that of the decades-long HIV/AIDS and opioid-overdose epidemics but considerably smaller than that of the Spanish flu of 1918. Unlike HIV/AIDS and opioid epidemics, the COVID-19 deaths are concentrated in a period of months rather than spread out over decades.

Keywords: COVID-19 | epidemic | mortality | demography | life expectancy

Significance: What would a hypothetical 1 million US deaths in the COVID19 epidemic mean for mortality of individuals at the population level? Life expectancy for 2020 would drop by 2.9 y. Those dying would lose an average of 11.7 y of expected remaining life, while for the general population the loss of remaining life

would be 0.2 y for elders (at age 80) and much less at younger ages. Mortality per person would be less than that of the Spanish flu, but closer to that of the opioid and HIV/AIDS epidemics, while far more concentrated in time. The standard valuation of averting 1.75 million deaths would be many trillions of dollars.

LEDFORD 2020

Heidi Ledford, *Covid-19 Reinfection, Three Questions Scientists Are Asking*. *nature* **585** (2020), 168–169.

Repeat infections raise questions about long-term immunity and the prospects for a vaccine.

WADMAN 2020

Meredith Wadman, *Why obesity worsens COVID-19*. *science* **369** (2020), 1280–1281. DOI:10.1126/science.369.6509.1280.

Even people in the overweight category face higher risk of serious disease. That “may be one reason for the devastating impact of COVID-19 in the United States, where 40% of adults are obese.

[...] says Stephen O’Rahilly, a physician-scientist who directs the MRC Metabolic Diseases Unit at the University of Cambridge. “If you’re 300 pounds, even losing a modest amount is likely to have a disproportionate benefit on how well you do with coronavirus infection. You don’t have to become a slim Jim to benefit.”

ZEICHHARDT 2020

Heinz Zeichhardt & Martin Kammel, *Kommentar zum Extra Ringversuch Gruppe 340 Virusgenom-Nachweis – SARS-CoV-2*. *INSTAND* **2020**, May 2. <<http://www.instand-ev.de/>> (2020-09-11).

<http://www.instand-ev.de/System/rv-files/Zusammenfassung%20der%20Probeneigenschaften%20und%20Sollwerte%20Virologie%20340%20Juni%20Juli%202020%2020200911a.pdf>

Für die drei SARS-CoV-2-positiven Proben 340059, 340063 und 340064 im Verdünnungsbereich 1:1000 bis 1:100000 erbrachten die Teste zum Genom-Nachweis von SARS-CoV-2 unabhängig von der untersuchten Gen-Region überwiegend richtig positive Ergebnisse (98,9% bis 99,7% richtige qualitative Ergebnisse). Diese hohen Erfolgsquoten repräsentieren eine sehr gute Leistungsfähigkeit der Ringversuchsteilnehmer und der angewendeten Testformate.

Anthropologie

ABE 2020

Nobuhito Abe, *Overriding a moral default for honesty or dishonesty*. *PNAS* **117** (2020), 21844–21846.

WYNN 2020

Jonathan G. Wynn, Zeresenay Alemseged, René Bobe, Frederick E. Grine, Enquye W. Negash & Matt Sponheimer, *Isotopic evidence for the timing of the dietary shift toward C₄ foods in eastern African Paranthropus*. *PNAS* **117** (2020), 21978–21984.

[pnas117-21978-Supplement.pdf](#)

New approaches to the study of early hominin diets have refreshed interest in how and when our diets diverged from those of other African apes. A trend toward

significant consumption of C4 foods in hominins after this divergence has emerged as a landmark event in human evolution, with direct evidence provided by stable carbon isotope studies. In this study, we report on detailed carbon isotopic evidence from the hominin fossil record of the Shungura and Usno Formations, Lower Omo Valley, Ethiopia, which elucidates the patterns of C4 dietary utilization in the robust hominin *Paranthropus*. The results show that the most important shift toward C4 foods occurred at ≈ 2.37 Ma, within the temporal range of the earliest known member of the genus, *Paranthropus aethiopicus*, and that this shift was not unique to *Paranthropus* but occurred in all hominins from this fossil sequence. This uptake of C4 foods by hominins occurred during a period marked by an overall trend toward increased C4 grazing by cooccurring mammalian taxa from the same sequence. However, the timing and geographic patterns of hominin diets in this region differ from those observed elsewhere in the same basin, where environmental controls on the underlying availability of various food sources were likely quite different. These Results highlight the complexities of dietary responses by hominins to changes in the availability of food resources.

Keywords: hominin diet | carbon isotope | paleodiet | bioapatite

Significance: Reconstructing the dietary adaptations of our earliest ancestors is critical to understanding the evolution of our relationship with our environment. Here, we present carbon isotope data from hominins of the Shungura and Usno Formations, both part of the Pliocene to Pleistocene Omo Group, Ethiopia, a key sequence for the study of hominin evolution in eastern Africa. Our data show that about 2.37 Ma the diet of both robust and gracile hominins shifted profoundly toward consumption of C4-derived foods (largely grasses and sedges), within the temporal range of an early member of the genus *Paranthropus aethiopicus*. This dietary shift in both groups of hominins occurred during a period marked by similar patterns for coeval herbivore taxa.

Bibel

CLINE 2000

Eric Cline, *The Battles of Armageddon, Megiddo and the Jezreel Valley from the Bronze Age to the Nuclear Age*. (Ann Arbor 2000).

GANOR 2019

Saar Ganor & Igor Kreimerman, *An Eighth-Century b.c.e. Gate Shrine at Tel Lachish, Israel*. [Bulletin of the American Schools of Oriental Research](#) **381** (2019), 211–236.

Excavations conducted on behalf of the Israel Antiquities Authority at Tel Lachish exposed the southern half of the six-chambered gate in Level III. In the eastern chamber, a gate shrine was uncovered. The shrine was split in two: a larger northern room and a smaller southern room. The southern room, which served as the holy of holies, had a niche in its southern wall in front of which a double altar was placed. Dozens of bowls and oil lamps were revealed inside the shrine. At some point, evidently prior to the destruction of Level III by Sennacherib in 701 b.c.e., the shrine was desecrated and sealed. This act was evident in the breakage of the altar's horns and the placement of a latrine in the holy of holies. The available data suggests that the desecration of the shrine should be associated with Hezekiah's cultic reform (2 Kgs 18:4).

Keywords: Lachish | Iron Age | cult | gate shrine | altar | toilet | desecration | Hezekiah | cult reform

HECKL 2018

Raik Heckl, *The Composition of Ezra-Nehemiah as a Testimony for the Competition Between the Temples in Jerusalem and on Mt. Gerizim in the Early Years of the Seleucid Rule over Judah*. In: MAGNAR KARTVEIT & GARY N. KNOPPERS (Hrsg.), *The Bible, Qumran, and the Samaritans*. *Studia Samaritana* 10 (Berlin 2018), 115–132.

Ezra-Nehemiah contains a radical interpretation of the Torah from the Jerusalem perspective that enables us to recognize the situation in which it was created. It also testifies to the existence of a different Judaism during the Persian period. In this essay, I want to illuminate the program of the Ezra-Nehemiah composition for a Judaism that is focussed exclusively on Jerusalem. After some methodological remarks I will describe the main steps in the emergence of the Ezra-Nehemiah composition and its intention. Secondly, I want to emphasize especially the function of the Ezra story within Ezra-Nehemiah. In the third part of my work, I will discuss the connection of the older Nehemiah story with the Ezra-Nehemiah composition. The link between Neh 7–8 and Neh 10 shows how and why the authors of the composition made the Nehemiah story part of the larger composition. Two summarizing parts will conclude my essay. In the first part, I wish to reconstruct the discourses of which Ezra-Nehemiah was part and to date these discourses. In the second part, I would like to discuss the hermeneutics of Ezra-Nehemiah with respect to the Torah and the emergence of the canon of the Hebrew Bible.

MILLARD 2014

Alan Millard, *The New Jerusalem Inscription, So What?* *Biblical Archaeology Review* 40 (2014), iii, 49–53.

For someone to inscribe a jar before it was baked, as in this case, indicates the presence in the potter's workshop of someone able to write and someone able to read it at its destination. This was not done in the elevated study of the scribe who was making a record of the events of the king's reign but in places where ordinary workmen made pots.

MOWINCKEL 1962

Sigmund Mowinckel, *Drive and/or Ride in O.T.* *Vetus Testamentum* 12 (1962), 278–299.

PAKKALA 2008

Juha Pakkala, *Gedaliah's Murder in 2 Kings 25:25 and Jeremiah 41:1–3*. In: ANSSI VOITILA & JUTTA JOKIRANTA (Hrsg.), *Scripture in Transition, Essays on Septuagint, Hebrew Bible, and Dead Sea Scrolls in Honour of Raija Sollamo*. *Supplements to the Journal for the Study of Judaism* 126 (Leiden 2008), 401–411.

Since even the textual witnesses show such radical differences, it seems evident that the text was still developing in a relatively late period. This is emphasized by the fact that the final text of 2Kgs more than doubled in size in Jeremiah. The lxx in Jer 48:1–3 provides a glimpse of an intermediary phase, after which the text continued to develop. The end of the development can be seen in the Masoretic text of Jer 41:1–3.

That we have three versions, each of which provides a window to different periods in the text's development, shows that the text was gradually inflated. As many of the expansions seem to be small and unrelated to each other, it is probable that the text was constantly expanded by different hands over several centuries. Before

the text became too holy too be altered, each copyist was a potential editor, who put his views in, and left his mark on, the text.

Since the textual witnesses provide clear evidence for constant editing at the later stages of the text's development, one has to be open to the possibility that similar additions were made in the earlier stages of the text's development as well. If texts can more than double in size during a late period when the text was becoming more and more authoritative and holy, it is fair to assume that editorial interventions were not more limited in the earlier periods. Quite the contrary, it is probable that editorial activity was more common when the text did not yet have such an authoritative status as in the later periods. We may have to expect even larger interventions in the text.

In most cases we do not possess parallel texts which would provide information about the development of a passage.

PAKKALA 2018

Juha Pakkala, *Why the Cult Reforms in Judah Probably Did not Happen*. In: MAGNAR KARTVEIT & GARY N. KNOPPERS (Hrsg.), *The Bible, Qumran, and the Samaritans*. Studia Samaritana 10 (Berlin 2018), 201–235.

It is fairly evident that the destruction of 587/6 BCE meant a dramatic reorientation in the political, religious and economic structures of Judah. Due to the many gaps in our knowledge, much of the discussion about what 'really' happened – for example, what can be shown to be early in the biblical texts – has to resort to discussions about probabilities and possibilities. Probable is that 587/6 BCE was a turning point in Israel's religion, because the basic fundamentals of Israel's religion and society, the temple, Yahweh's temple cult, monarchy and state, had collapsed to the extent that the practice of the old religion would have been impossible except in a radically altered form.

The fragments that we have in 2 Kings 23 do not justify the assumption that the dramatic shift took place under Josiah. The conventional view also does not provide any explanation for why Israel's religion suddenly turned on itself and rejected many traditional conceptions. The coerced reorientation of 587/6 BCE would provide the explanation. With entirely new conceptions rising out of changed circumstances, later authors would have had to turn on Israel's older religion and attack many of its earlier traditions. There would therefore have to be very solid evidence to assume that any significant change in religion, such as an extensive cult reform, took place very shortly, just decades, before the catastrophe, as if anticipating the catastrophe and preparing for a templeless time when there was no monarch, and that such extensive changes came unscathed through the catastrophe.

RÖMER 2018

Thomas Römer, *Cult Centralization and the Publication of the Torah Between Jerusalem and Samaria*. In: MAGNAR KARTVEIT & GARY N. KNOPPERS (Hrsg.), *The Bible, Qumran, and the Samaritans*. Studia Samaritana 10 (Berlin 2018), 79–92.

The centralization formula arose in a seventh-century "Urdeuteronomium," which was not a Northern but a Judean scroll, in order to demonstrate that the only legitimate sanctuary for sacrificing to Yhwh was the Temple of Jerusalem. When Deuteronomy became the opening of the so-called DtrH, the Deuteronomistic redactors had to explain the fact that before the construction of the Temple, Yhwh had been worshipped in other places. The Deuteronomistic temple speech

in Jeremiah 7 claims that Yhwh did choose another sanctuary before Jerusalem, Shiloh. But just as Shiloh had been destroyed, the Temple in Jerusalem could also be put to ashes. In the context of the Pentateuch, the centralization law in Deuteronomy 12 is in tension with the introduction to the Covenant Code in Exod 20:24–26 which allows for a diversity of chosen places. A similar strategy can be found in the Priestly idea of a mobile sanctuary, which could be understood as a prototype for the Jerusalem Temple, but also for the Temple of Gerizim. This possibility of ‘double entendre’ can perhaps be explained by the idea that the Priestly authors were not only Judean but also Samaritan priests. Samaritan interventions can also be detected in the importance given to Shechem in the beginning of the Abraham narrative and in Joshua 24. And finally we may ask whether the Joseph novella did arise in the context of a Samaritan diaspora in Egypt. Much further investigation is necessary. But we need to imagine for the Samaritans a more active role in the production of the Torah.

TOV 2018

Emanuel Tov, *Textual Harmonization in the Five Books of the Torah, A Summary*. In: MAGNAR KARTVEIT & GARY N. KNOPPERS (Hrsg.), *The Bible, Qumran, and the Samaritans*. *Studia Samaritana* 10 (Berlin 2018), 31–56.

The five books of the Torah share a special phenomenon that is unusual within the Hebrew Bible: all five of them feature exactly the same textual characteristics despite containing different content genres. As strange as it may sound, harmonization is the most central textual feature in a large group of textual witnesses of the Torah, appearing in the LXX, the SP (Samaritan Pentateuch), and several Hebrew manuscripts, but not in the Masoretic Text (MT). This situation implies that several witnesses of these five books underwent the same type of textual development, which is understandable as they form one unit. It should be pointed out that textual harmonization is not a natural or expected phenomenon, but it developed nevertheless in certain texts. What is unusual is that this phenomenon is prominent in the Torah and not in the other Scripture books that probably provide more occasion for harmonization. See section 10.

UEHLINGER 2005

Christoph Uehlinger, *Was There A Cult Reform Under King Josiah? The Case for a Well-Grounded Minimum*. In: LESTER L. GRABBE (Hrsg.), *Good Kings and Bad Kings*. *Library of Hebrew Bible / Old Testament Studies* 393 (2005), 279–316.

Whether Josiah’s purging of the Jerusalem state cult or royal shrine from rituals that had become obsolete should be called a ‘religious reform’ is debatable. A reform implies an agenda, but the actual motives behind those of Josiah’s purges that can be historically substantiated are far from clear. The biblical sources present Josiah’s reform as a ‘new religious beginning’ (Lohfink 1991a: 225), while modern scholars have sometimes construed it as a political-religious declaration of independence with anti-Assyrian tendencies. Neither of these two rather far-reaching agendas seem to fit the more confined picture based on critical historical research.

WILSON 2018

Daniel Josiah Wilson, *2 Kings 3:27, Yahweh’s Wrath On Israel’s Sin*. MA thesis, Master’s University (Sun Valley 2018).

In sum, Israel incurred the wrath of Yahweh, the only god who has power to express anger on earth, because his people were breaking the laws of warfare given in his Torah (Deut 20).

Biblically and theologically, this study showed that, outside of this passage, no pagan gods are ever allowed power, within or without Yahweh's sovereignty.

Biologie

LE ROUX 2020

Elizabeth le Roux, Laura S. van Veenhuisen, Graham I. H. Kerley & Joris P. G. M. Cromsigt, *Animal body size distribution influences the ratios of nutrients supplied to plants*. [PNAS 117 \(2020\), 22256–22263. pnas117-22256-Supplement.pdf](#)

Nutrients released through herbivore feces have the potential to influence plant-available nutrients and affect primary productivity. However, herbivore species use nutrients in set stoichiometric ratios that vary with body size. Such differences in the ratios at which nutrients are used leads to differences in the ratios at which nutrients are deposited through feces. Thus, local environmental factors that affect the average body size of an herbivore community (such as predation risk and food availability) influence the ratios at which fecal nutrients are supplied to plants. Here, we assess the relationship between herbivore body size and the nitrogen-to-phosphorus ratios of herbivore feces. We examine how shifts in the average body size of an herbivore community alter the ratios at which nitrogen and phosphorus are supplied to plants and test whether such differences in the stoichiometry of nutrient supply propagate through plants. We show that dung from larger-bodied herbivores contain lower quantities of phosphorus per unit mass and were higher in N:P ratio. We demonstrate that spatial heterogeneity in visibility (a proxy for predation risk and/or food availability) and rainfall (a proxy for food availability), did not affect the overall amount of feces deposited but led to changes in the average body size of the defecating community. Feces deposited in areas of higher rainfall and reduced visibility originated from larger herbivores and were higher in N:P ratios. This indicates that processes that change the size distribution of herbivore communities, such as predation or size-biased extinction, have the potential to alter the nutrient landscape for plants.

Keywords: ecosystem stoichiometry | consumer-driven biogeochemical cycling | megaherbivores | landscape of fear

Significance: Herbivores influence nutrient cycling by depositing feces across the landscape. Where herbivores go in the landscape is governed by factors such as food requirements and vulnerability to predation, traits that are related to body size. We show that mammals that differ in body size not only use the landscape differently but also differ in the amount of nitrogen relative to phosphorus that they release through their feces. This ensures that plants that grow in areas used by predominantly larger herbivores (such as areas of higher predation risk or areas of greater food availability) will receive lower amounts of fecal phosphorus relative to fecal nitrogen, potentially impacting plant nutrient availability. This finding is noteworthy considering the extinction bias toward larger animals.

Judentum

GEIGER 1864

Abraham Geiger, *Das Judentum und seine Geschichte*. (kein Ort 2016). Nachdruck der Breslauer Erstausgabe durch Hansebooks.

MÜLLER-KESSLER 2000

Christa Müller-Kessler & Theodore Kwasman, *A Unique Talmudic Aramaic Incantation Bowl*. [Journal of the American Oriental Society](#) **120** (2000), 159–165.

Generally, incantation bowls are written in a formal standardized literary Eastern Aramaic or, less frequently, in a “koine” of Southern Babylonian Aramaic. The present article treats a magic bowl that is written in an idiom that is related to Talmudic Aramaic. Although the term Talmudic Aramaic has been used indiscriminately in several studies to describe the language of incantation bowls, the only attested evidence for this dialect in a bowl written in Aramaic square characters is the single British Museum bowl, BM 135563 (1971-2-29, 1), presented here. The text has a strong parallel in a late copy of a Mandaic incantation series Shafta d Pishra d Ainia which is also reminiscent of a passage in the incantation series Maqlu.

Klima

KNAPP 2020

Alan K. Knapp & Melinda D. Smith et al., *Resolving the Dust Bowl paradox of grassland responses to extreme drought*. [PNAS](#) **117** (2020), 22249–22255.

[pnas117-22249-Supplement.pdf](#)

During the 1930s Dust Bowl drought in the central United States, species with the C3 photosynthetic pathway expanded throughout C4-dominated grasslands. This widespread increase in C3 grasses during a decade of low rainfall and high temperatures is inconsistent with well-known traits of C3 vs. C4 pathways. Indeed, water use efficiency is generally lower, and photosynthesis is more sensitive to high temperatures in C3 than C4 species, consistent with the predominant distribution of C3 grasslands in cooler environments and at higher latitudes globally. We experimentally imposed extreme drought for 4 y in mixed C3/C4 grasslands in Kansas and Wyoming and, similar to Dust Bowl observations, also documented three- to fivefold increases in C3/C4 biomass ratios. To explain these paradoxical responses, we first analyzed long-term climate records to show that under nominal conditions in the central United States, C4 grasses dominate where precipitation and air temperature are strongly related (warmest months are wettest months). In contrast, C3 grasses flourish where precipitation inputs are less strongly coupled to warm temperatures. We then show that during extreme drought years, precipitation–temperature relationships weaken, and the proportion of precipitation falling during cooler months increases. This shift in precipitation seasonality provides a mechanism for C3 grasses to respond positively to multiyear drought, resolving the Dust Bowl paradox. Grasslands are globally important biomes and increasingly vulnerable to direct effects of climate extremes. Our findings highlight how extreme drought can indirectly alter precipitation seasonality and shift ecosystem phenology, affecting function in ways not predictable from key traits of C3 and C4 species.

Keywords: climate change | extreme drought | photosynthetic pathway | precipitation seasonality

Alan K. Knapp, Anping Chen, Robert J. Griffin-Nolan, Lauren E. Baur, Charles J. W. Carroll, Jesse E. Gray, Ava M. Hoffman, Xiran Li, Alison K. Post, Ingrid J. Slette, Scott L. Collins, Yiqi Luo & Melinda D. Smith

Significance: During the Dust Bowl drought, central US grasslands responded unexpectedly to a decade of hot, dry conditions. Grass species adapted to high

temperatures with higher water use efficiency (C4 grasses) decreased, while those preferring cooler climates (C3 grasses) increased. We reproduced this surprising response by experimentally imposing extreme drought in two native grasslands. Analysis of historical climate records revealed that during extreme drought years, the proportion of annual precipitation that occurs during cooler months increases. This previously unidentified shift in seasonal precipitation patterns during extreme drought years provides a mechanism for C3 grasses to increase despite overall hot, dry conditions. Thus, alterations in precipitation seasonality may be as important as reduced precipitation amount when forecasting ecosystem responses to extreme drought.

NEGASH 2020

Enquye W. Negash, Zeresenay Alemseged, René Bobe, Frederick Grine, Matt Sponheimer & Jonathan G. Wynn, *Dietary trends in herbivores from the Shungura Formation, southwestern Ethiopia*. [PNAS 117 \(2020\), 21921–21927](#).

Diet provides critical information about the ecology and environment of herbivores. Hence, understanding the dietary strategies of fossil herbivores and the associated temporal changes is one aspect of inferring paleoenvironmental conditions. Here, we present carbon isotope data from more than 1,050 fossil teeth that record the dietary patterns of nine herbivore families in the late Pliocene and early Pleistocene (3.6 to 1.05 Ma) from the Shungura Formation, a hominin-bearing site in southwestern Ethiopia. An increasing trend toward C4 herbivory has been observed with attendant reductions in the proportions of browsers and mixed feeders through time. A high proportion of mixed feeders has been observed prior to 2.9 Ma followed by a decrease in the proportion of mixed feeders and an increase in grazers between 2.7 and 1.9 Ma, and a further increase in the proportion of grazers after 1.9 Ma. The collective herbivore fauna shows two major change points in carbon isotope values at ≈ 2.7 and ≈ 2.0 Ma. While hominin fossils from the sequence older than 2.7 Ma are attributed to *Australopithecus*, the shift at ≈ 2.7 Ma indicating the expansion of C4 grasses on the landscape was concurrent with the first appearance of *Paranthropus*. The link between the increased C4 herbivory and more open landscapes suggests that *Australopithecus* lived in more wooded landscapes compared to later hominins such as *Paranthropus* and *Homo*, and has implications for key morphological and behavioral adaptations in our lineage.

Keywords: stable isotopes | herbivores | fauna | tooth enamel | Shungura Formation

Significance: Studying the diet of fossil herbivores is a critical aspect of understanding past ecology. Here, we present carbon isotope data from the collective herbivore fauna in the Shungura Formation, Ethiopia, a key sequence for the study of mammalian evolution in eastern Africa. We document temporal patterns in the diet of nine mammalian herbivore families in the late Pliocene and early Pleistocene. The diet of herbivores has significantly changed in the last 3.5 Ma, and major dietary transitions are observed in several taxa around ≈ 2.7 Ma and then at ≈ 2.0 Ma. These patterns reflect response of the fauna to major ecological and environmental changes and provide a comparative framework for the study of hominin diet during this time.

WESTERHOLD 2020

Thomas Westerhold et al., *An astronomically dated record of Earth's climate and its predictability over the last 66 million years*. [science 369 \(2020\), 1383–1387](#).

s369-1383-Supplement1.pdf, s369-1383-Supplement2.xlsx

Much of our understanding of Earth's past climate comes from the measurement of oxygen and carbon isotope variations in deep-sea benthic foraminifera. Yet, long intervals in existing records lack the temporal resolution and age control needed to thoroughly categorize climate states of the Cenozoic era and to study their dynamics. Here, we present a new, highly resolved, astronomically dated, continuous composite of benthic foraminifer isotope records developed in our laboratories. Four climate states—Hothouse, Warmhouse, Coolhouse, Icehouse—are identified on the basis of their distinctive response to astronomical forcing depending on greenhouse gas concentrations and polar ice sheet volume. Statistical analysis of the nonlinear behavior encoded in our record reveals the key role that polar ice volume plays in the predictability of Cenozoic climate dynamics.

Thomas Westerhold, Norbert Marwan, Anna Joy Drury, Diederik Liebrand, Claudia Agnini, Eleni Anagnostou, James S. K. Barnett, Steven M. Bohaty, David De Vleeschouwer, Fabio Florindo, Thomas Frederichs, David A. Hodell, Ann E. Holbourn, Dick Kroon, Vittoria Laetana, Kate Littler, Lucas J. Lourens, Mitchell Lyle, Heiko Pälike, Ursula Röhl, Jun Tian, Roy H. Wilkens, Paul A. Wilson & James C. Zachos

Kultur

DAVID 2010

Wolfgang David, *Die Zeichen auf der Scheibe von Nebra und das altbronzezeitliche Symbolgut des Mitteldonau-Karpatenraumes*. In: HARALD MELLER & FRANÇOIS BERTEMES (Hrsg.), *Der Griff nach den Sternen, Internationales Symposium in Halle (Saale) 16.–21. Februar 2005*. Tagungen des Landesmuseums für Vorgeschichte Halle 5 (Halle 2010), 439–439.

The symbols on the “Nebra Sky Disc” and Early Bronze Age symbols of the Middle Danube-Carpathian region The later Early Bronze Age and the earlier Middle Bronze Age according to central European terminology (Reinecke A2 and B) are known, especially in the central Danubian area, as a period of rich creativity of various ornamental systems on bronze, gold and ceramics. These styles of ornamentation cannot only be viewed simply as an expression of a purely aesthetic motivation, but they also functioned as a medium for depicting certain signs, or visualized explanations of rational or non-rational associations of meaning. The Early and Middle Bronze Age cultural features of the middle Danubian region mentioned above – disregarding all regional specific differences – show a certain common pool of ornamental motifs; among these common symbols are also those which represent a more or less sharply cut meaning. As these are mostly signs of a solar, astral or lunar character, one has to question on the one hand if further knowledge for the “reading” of the “Nebra Sky Disc” can be won from studying them, and on the other hand which contribution in general the depiction on the “Nebra Sky Disc” can deliver for the understanding of the Early and Middle Bronze Age pool of symbols.

Keywords: Bronze Age | Danube countries | pool of symbols | ornament | pendants | gold finds | ceremonial weapons

Die jüngere Frühbronzezeit und die ältere Mittelbronzezeit nach mitteleuropäischer Terminologie (Reinecke A2 und B) stellt vor allem im mittleren Donaauraum eine Periode reicher Entfaltung vielfältiger Ornamentensysteme auf Bronze, Gold und Keramik dar. Diese Ornamentstile sind nicht allein als Ausdruck eines ausschließlich ästhetischen Willens anzusehen, sondern sie fungierten auch als Medium

zur Darstellung bestimmter Zeichen, als visualisierte Explikationen von Aspekten eines rationalen oder irrationalen Bedeutungszusammenhangs. Die oben genannten alt- und mittelbronzezeitlichen Kulturerscheinungen des Mitteldonauraumes weisen, ungeachtet aller regionalspezifischen Unterschiede, ein gewisses Gemeingut an bestimmten Ornamentmotiven auf, unter denen sich nicht zuletzt auch solche befinden, die als Symbole einen mehr oder weniger scharf umrissenen Sinngehalt verkörpern. Da es sich in erster Linie um Zeichen solaren, astralen oder lunaren Charakters handelt, ist zum einen zu fragen, ob sich aus ihnen weitere Erkenntnisse zur “Lesung” der Scheibe von Nebra gewinnen lassen, und zum anderen, welchen Beitrag umgekehrt die Darstellung auf der Scheibe von Nebra für das Verständnis des alt- und mittelbronzezeitlichen Symbolgutes im Allgemeinen leisten kann.

Keywords: Bronzezeit | Donauländer | Symbolgut | Ornament | Anhänger | Goldfunde | Prunkwaffen

Kupfer

BARON 2020

Justyna Baron, Marcin Maciejewski, Beata Miazga, Kamil Nowak & Dawid Sych, *More Bronze Age less bronze, Copper axes in the late Bronze Age hoard from Karmin, Poland*. *Antiquity* (2020), preprint, 1–8. DOI:10.15184/aqy.2020.139.

A Late Bronze Age hoard from Karmin, Poland, contained 16 socketed axes, half of which were made of copper. The copper axes represent the same local type as the bronze objects and bear the same traces of manufacturing and use. The authors argue that the move to copper was a response to unexpected difficulties in the tin supply.

Keywords: Poland | Bronze Age | axes | copper | use wear | metallurgy

Religion

MÜLLER-KESSLER 2018

Christa Müller-Kessler, *Šamaš, Šîn (Sira, Sahara), Delibat (Ištar, Al-‘Uzzā), und Kēwān (Kajjamānu) in den frühen mandäischen magischen Texten und bei ihren Nachbarn — Eine Bestandsaufnahme*. *Isimu* **21** (2018), 259–296.

Die drei großen mesopotamischen Gottheiten ama, Sin, Delibat (Istar) und der weniger prominente Kwn (Kajjamnu) wurden bis in die Spätantike weiterverehrt. Bis heute lag der Hauptschwerpunkt in der Forschung bei den ersten drei Gottheiten, besonders zu Fragen ihrer Verehrung und Relektionen im spätantiken Textkorpus in Nordmesopotamien. Weniger Beachtung fanden die sudmesopotamischen Textquellen, die hauptsächlich aus dem Beschwörungskorpus der Mandaer und ihren benachbarten religiösen Gruppen der Juden, Christen und Manichaer bestehen. Eine erste Aufarbeitung der diversen Gottererscheinungen und ihrer Bedeutung für die späte Überlieferung bietet diese vorläufige Zusammenstellung.

Keywords: al-Uzza, Bleirollen, Delibat, Istar, Kewan, Kajjamanu, Mandäer, Samas, Sin, Sira, Sahara, Spätantike, Zauberschalen

PÁSZTOR 2007

Emília Pásztor & Curt Roslund, *An interpretation of the Nebra disc*. *Antiquity* **81** (2007), 267–278.

The Nebra disc is one of the most sensational European discoveries of the decade. It appears to carry symbols of the sun, moon and stars wrought in gold on a flat bronze disc just over a foot across (320mm). It is not only very strange, but, famously, appears to be winking, initially raising the suspicion that it may be a hoax. Scholars have, however, claimed it firmly for the Bronze Age, and the debate now moves to the matter of its meaning. Here the authors offer a subtle interpretation that sees it as the shamanistic device of a local warrior society.

Keywords: Europe | Bronze Age | Germany | Sachsen-Anhalt | Nebra | shield | religion | shaman

Sprachlehre

DUDEN 1902

Konrad Duden, *Orthographisches Wörterbuch der deutschen Sprache, Nach den für Deutschland, Österreich und die Schweiz gültigen amtlichen Regeln.* ([Leipzig 1902](#)).

KLUGKIST 1982

Alexander Cornelis Klugkist, *Midden-Aramese Schriften, in Syrië, Mesopotamië, Perzië en aangrenzende gebieden.* Dissertation, Universiteit Groningen ([Groningen 1982](#)).