

## References

### Aktuell

ANDERSEN 2017

Ken H. Andersen & Henrik Gislason, *Unplanned ecological engineering*. [PNAS 114 \(2017\), 634–635](#).

Fisheries can double the production of protein and revenue by abandoning current single-species management. This provocative prediction is the implication of the work in PNAS by Szuwalski et al. Using the East China Sea as a case, they show how an indiscriminate fishery can support unexpectedly large catches by removing predators from the ecosystem. Such ecosystem engineering stands in stark contrast to reigning management paradigms that do not allow fishing down predators to increase the productivity of their prey.

High production is, however, only one aspect of fisheries and ecosystem management. Management faces a trade-off between balancing high yields and food security with high profit and conservation of biodiversity. Narrowly focusing on one aspect will compromise the others: You cannot have your fish and eat it too. One extreme is an ecosystem free from fishing. It is a highly diverse ecosystem teeming with diverse life, from small forage fish to large predatory species. However, it does not deliver any catch or economic profit from fisheries. Pleasant as it may seem, a global implementation of this paradigm would require substitutes for the 10protein production supported by wild-caught fish. The other extreme is the East China Sea and similar heavily exploited ecosystems. Such indiscriminately fished systems are dominated by small and short-lived species such as zooplanktivorous fish, shrimp, and squid. Recognizing this trade-off, Szuwalski et al. suggest that a restoration of the ecosystem toward balancing the opposing objectives of food production and biodiversity comes at a cost: about a 50revenue.

Regarding economy, the last aspect in the trade-off, Szuwalski et al. offer only a partial view: They report the value of the catch but not the costs. The prediction that the value of the catch is smaller in a restored ecosystem makes restoration appear economically unattractive for society. Such may not be the case. The high production comes at the cost of anovercapitalized fishery, and the direct costs of extracting the high catches make such a fishery less attractive from an economic perspective. Accounting for costs by maximizing profit instead of revenue would lead to lower exploitation rates. Doing so could, at least partially, accommodate conservation of biodiversity. Further, the impoverishment of the ecosystem will have economic consequences beyond the fishing industry (e.g., in recreational fisheries or tourism). A comprehensive economic analysis that includes the costs of indiscriminate exploitation will make restoration more economically attractive for society.

BONE 2017

Sharon E. Bone, James J. Dynes, John Cliff & John R. Bargar, *Uranium(IV) adsorption by natural organic matter in anoxic sediments*. [PNAS 114 \(2017\), 711–716](#).

Uranium is an important carbon-free fuel source and environmental contaminant that accumulates in the tetravalent state, U(IV), in anoxic sediments, such as ore deposits, marine basins, and contaminated aquifers. However, little is known about

the speciation of U(IV) in low-temperature geochemical environments, inhibiting the development of a conceptual model of U behavior. Until recently, U(IV) was assumed to exist predominantly as the sparingly soluble mineral uraninite (UO<sub>2+x</sub>) in anoxic sediments; however, studies now show that this is not often the case. Yet a model of U(IV) speciation in the absence of mineral formation under field-relevant conditions has not yet been developed. Uranium(IV) speciation controls its reactivity, particularly its susceptibility to oxidative mobilization, impacting its distribution and toxicity. Here we show adsorption to organic carbon and organic carbon-coated clays dominate U(IV) speciation in an organic-rich natural substrate under field-relevant conditions. Whereas previous research assumed that U(IV) speciation is dictated by the mode of reduction (i.e., whether reduction is mediated by microbes or by inorganic reductants), our results demonstrate that mineral formation can be diminished in favor of adsorption, regardless of reduction pathway. Projections of U transport and bioavailability, and thus its threat to human and ecosystem health, must consider U(IV) adsorption to organic matter within the sediment environment.

**Keywords:** uranium | organic matter | STXM | NanoSIMS | EXAFS

**Significance:** Uranium is an important fuel source and pollutant, and its chemical form determines its reactivity in the environment. However, information on the speciation of tetravalent U [U(IV)] in sediments is lacking. The research presented herein takes a holistic view of U(IV) speciation in a natural material containing microbial cells, organic matter, and minerals. Our work demonstrates unequivocally that U(IV) adsorbs to natural organic matter under anoxic, field-relevant conditions. Furthermore, we put forward a conceptual model that provides a framework for future studies of U biogeochemistry in which postreduction surface complexation processes can be used to predict U(IV) behavior. Our work has ramifications for remediation of U-contaminated sites and also informs in situ mining practices.

## MCDONNELL 2017

Jeffrey J. McDonnell, *Paper writing gone Hollywood*. [science](#) **355** (2017), 102.

Balancing each of the status quo elements is a great way to set up the introduction—often the toughest section for early-career scientists to write—and to lead the reader to the research questions or hypotheses.

Once the pitch makes sense, we go back and forth stacking the Russian dolls on the whiteboard until the outline subheadings become paragraph topics, with every paragraph explicitly represented in the outline. Honing this outline prior to any writing allows us to determine whether the research story resonates from start to finish. We might spend days or weeks on the outline to get it right, but it's time well spent. The slavish adherence to nested headings shows at a glance whether the paper makes a clear and worthy contribution; whether the title, objectives, and results are properly aligned; what figures are truly essential to the storyline; and whether the message hums. Writing then becomes a much easier process of filling in the blanks. The paper is effectively finished before the sentence writing starts.

## SANDS 2017

Melissa L. Sands, *Exposure to inequality affects support for redistribution*. [PNAS](#) **114** (2017), 663–668.

The distribution of wealth in the United States and countries around the world is highly skewed. How does visible economic inequality affect well-off individuals' support for redistribution? Using a placebo-controlled field experiment, I randomized the presence of poverty-stricken people in public spaces frequented by the

affluent. Passersby were asked to sign a petition calling for greater redistribution through a “millionaire’s tax.” Results from 2,591 solicitations show that in a real-world-setting exposure to inequality decreases affluent individuals’ willingness to redistribute. The finding that exposure to inequality begets inequality has fundamental implications for policymakers and informs our understanding of the effects of poverty, inequality, and economic segregation. Confederate race and socioeconomic status, both of which were randomized, are shown to interact such that treatment effects vary according to the race, as well as gender, of the subject.

**Keywords:** inequality | redistribution | field experiment | political science | taxation

**Significance:** As the world’s population grows more urban, encounters between members of different socioeconomic groups occur with greater frequency. I provide real-world experimental evidence that exposure to inequality shapes decision-making. By randomly assigning microenvironments of inequality, this study builds on observational research linking the salience of inequality to antisocial behavior, as well as survey experimental evidence connecting perceived inequality to diminished generosity. Specifically, I show that exposure to socioeconomic inequality in an everyday setting negatively affects willingness to publicly support a redistributive economic policy. This study advances our understanding of how environmental factors, such as exposure to racial and economic outgroups, affect human behavior in consequential ways.

## SZUWALSKI 2017

Cody S. Szuwalski, Matthew G. Burgess, Christopher Costello & Steven D. Gaines, *High fishery catches through trophic cascades in China*. *PNAS* **114** (2017), 717–721.

Indiscriminate and intense fishing has occurred in many marine ecosystems around the world. Although this practice may have negative effects on biodiversity and populations of individual species, it may also increase total fishery productivity by removing predatory fish. We examine the potential for this phenomenon to explain the high reported wild catches in the East China Sea—one of the most productive ecosystems in the world that has also had its catch reporting accuracy and fishery management questioned. We show that reported catches can be approximated using an ecosystem model that allows for trophic cascades (i.e., the depletion of predators and consequent increases in production of their prey). This would be the world’s largest known example of marine ecosystem “engineering” and suggests that trade-offs between conservation and food production exist. We project that fishing practices could be modified to increase total catches, revenue, and biomass in the East China Sea, but single-species management would decrease both catches and revenue by reversing the trophic cascades. Our results suggest that implementing single-species management in currently lightly managed and highly exploited multispecies fisheries (which account for a large fraction of global fish catch) may result in decreases in global catch. Efforts to reform management in these fisheries will need to consider system wide impacts of changes in management, rather than focusing only on individual species.

**Keywords:** ecosystem management | China | fisheries | trophic cascades | food security

**Significance:** Fishing marine ecosystems indiscriminately and intensely can have negative impacts on biodiversity, but it may increase the biomass of fish available for capture in the system. We explore the possibility that China’s high fishery catches are a result of predator removal using an ecosystem model of the East China Sea (ECS). We show that China’s high fishery catches can be explained by the removal of larger predatory fish and consequent increases in the production of

smaller fish. We project that single-species management would decrease catches in the ECS by reversing these ecosystem effects. Fisheries similar to those in China produce a large fraction of global catch; management reform in these areas must consider the entire ecosystem, rather than individual species.

## Anthropologie

KARMIN 2015

Monika Karmin et al., *A recent bottleneck of Y chromosome diversity coincides with a global change in culture*. *Genome Research* **25** (2015), 459–466.

GenomeRes25-0459-Supplement1.pdf, GenomeRes25-0459-Supplement2.pdf, GenomeRes25-0459-Supplement3.pdf, GenomeRes25-0459-Supplement4.txt, GenomeRes25-0459-Supplement5.txt, GenomeRes25-0459-Supplement6.txt, GenomeRes25-0459-Supplement7.txt

Monika Karmin, Lauri Saag, Mario Vicente, Melissa A. Wilson Sayres, Mari Jarve, Ulvi Gerst Talas, Siiri Rootsi, Anne-Mai Ilumae, Reedik Magi, Mario Mitt, Luca Pagani, Tarmo Puurand, Zuzana Faltyskova, Florian Clemente, Alexia Cardona, Ene Metspalu, Hovhannes Sahakyan, Bayazit Yunusbayev, Georgi Hudjashov, Michael DeGiorgio, Eva-Liis Loogvali, Christina Eichstaedt, Mikk Eelmeets, Gyaneshwer Chaubey, Kristiina Tambets, Sergei Litvinov, Maru Mormina, Yali Xue, Qasim Ayub, Grigor Zoraqi, Thorfinn Sand Korneliussen, Farida Akhatova, Joseph Lachance, Sarah Tishkoff, Kuvat Momynaliev, Francois-Xavier Ricaut, Pradiptajati Kusuma, Harilanto Razafindrazaka, Denis Pierron, Murray P. Cox, Gazi Nurun Nahar Sultana, Rane Willerslev, Craig Muller, Michael Westaway, David Lambert, Vedrana Skaro, Lejla Kovacevic, Shahlo Turdikulova, Dilbar Dalimova, Rita Khusainova, Natalya Trofimova, Vita Akhmetova, Irina Khidiyatova, Daria V. Lichman, Jainagul Isakova, Elvira Pocheshkhova, Zhaxylyk Sabitov, Nikolay A. Barashkov, Pagbajabyn Nymadawa, Evelin Mihailov, Joseph Wee Tien Seng, Irina Evseeva, Andrea Bamberg Migliano, Syafiq Abdullah, George Andriadze, Dragan Primorac, Lubov Atramentova, Olga Utevska, Levon Yepiskoposyan, Damir Marjanovic, Alena Kushniarevich, Doron M. Behar, Christian Gilissen, Lisenka Vissers, Joris A. Veltman, Elena Balanovska, Miroslava Derenko, Boris Malyarchuk, Andres Metspalu, Sardana Fedorova, Anders Eriksson, Andrea Manica, Fernando L. Mendez, Tatiana M. Karafet, Krishna R. Veeramah, Neil Bradman, Michael F. Hammer, Ludmila P. Osipova, Oleg Balanovsky, Elza K. Khusnutdinova, Knut Johnsen, Mait Metspalu, Mark G. Thomas, Chris Tyler-Smith, Peter A. Underhill, Eske Willerslev, Rasmus Nielsen, Richard Villems & Toomas Kivisild

It is commonly thought that human genetic diversity in non-African populations was shaped primarily by an out-of-Africa dispersal 50–100 thousand yr ago (kya). Here, we present a study of 456 geographically diverse high-coverage Y chromosome sequences, including 299 newly reported samples. Applying ancient DNA calibration, we date the Y-chromosomal most recent common ancestor (MRCA) in Africa at 254 (95% CI 192–307) kya and detect a cluster of major non-African founder haplogroups in a narrow time interval at 47–52 kya, consistent with a rapid initial colonization model of Eurasia and Oceania after the out-of-Africa bottleneck. In contrast to demographic reconstructions based on mtDNA, we infer a second strong bottleneck in Y-chromosome lineages dating to the last 10 ky. We hypothesize that this bottleneck is caused by cultural changes affecting variance of reproductive success among males.

## Archäologie

GENZ 2015

Hermann Genz, *Beware of environmental determinism, The transition from the Early to the Middle Bronze Age on the Lebanese coast and the 4.2ka BP event*. In: HARALD MELLER, HELGE WOLFGANG ARZ, REINHARD JUNG & ROBERTO RISCH (Hrsg.), *2200 BC – Ein Klimasturz als Ursache für den Zerfall der Alten Welt? 7. Mitteldeutscher Archäologentag vom 23. bis 26. Oktober 2014 in Halle (Saale)*. Tagungen des Landesmuseums für Vorgeschichte Halle 12 ([Halle 2015](#)), 97–111.

Recent excavations along the coastal plain of Lebanon, notably Tell Arqa, Tell Fadous-Kfarabida, and Sidon have provided a wealth of information concerning the 3rd and 2nd millennia BC. This new information allows us to contextualise the often ambiguous information from the older excavations at Byblos. While the northern coastal plain shows a strong continuity in settlement patterns and material culture from the Early to the Middle Bronze Age, evidence from the southern coastal plain suggests a discontinuity during the second half of the 3rd millennium BC, thus following the pattern observed in the southern Levant. According to radiocarbon dates, the transition from the Early Bronze Age III to the Early Bronze Age IV falls around 2500 BC, while the Middle Bronze Age begins around 2000 BC. There is, however, no evidence for any crisis in the coastal plain of Lebanon around 2200 BC.

Aktuelle Ausgrabungen in der Küstenebene des Libanon, insbesondere in Tell Arqa, Tell Fadous-Kfarabida und Sidon, haben weitreichende Erkenntnisse für das 3. und 2. Jt. v. Chr. erbracht. Diese neuen Informationen ermöglichen eine bessere Kontextualisierung der mehrdeutigen und weniger gut dokumentierten Befunde und Funde aus den älteren Grabungen in Byblos. Entlang der nördlichen Küstenebene deutet sich dabei eine starke Kontinuität sowohl in der Siedlungsverteilung als auch in der Entwicklung der materiellen Kultur von der frühen zur mittleren Bronzezeit an, wohingegen in der südlichen Küstenebene in der zweiten Hälfte des 3. Jts. v. Chr. ein Bruch in der Siedlungskontinuität zu verzeichnen ist, wie er auch in der südlichen Levante beobachtet werden kann. Nach neueren Radiokohlenstoffdaten lässt sich der Beginn der Frühbronzezeit IV nun in die Mitte des 3. Jts. v. Chr. datieren, während der Beginn der Mittelbronzezeit um ca. 2000 v. Chr. anzusetzen ist. Für eine Krise oder einen einschneidenden Umbruch in der Küstenebene des Libanon um 2200 v. Chr. gibt es hingegen keinerlei gesicherte Hinweise.

## Bibel

ASH 1995

Paul S. Ash, *Solomon's? District? List*. [Journal for the Study of the Old Testament](#) **20** (1995), 67, 67–86.

Albrecht Alt set the tone of discussion on Solomon's District List (1 Kgs 4.7-19) by declaring it to be a document of high historical worth, contemporary to Solomon. Seldom has this view been contested. Recent re-evaluations of the biblical account of Solomon's reign and the extent of literacy in his time, coupled with an analysis of the text (showing it is confused geographically, replete with Deuteronomistic glosses and redaction, and contains garbled personal names), argue

that the List was not drawn from archival sources but derives from oral and literary tradition. Three lines of evidence suggest that the Deuteronomistic Historian employed pre-existing information which has been garbled during transmission. Consequently the list is not proof of the existence of archives in Solomon's time, nor should it be used for reconstructing Solomon's reign.

#### DEVER 1990

William G. Dever, *Of Myths and Methods*. [Bulletin of the American Schools of Oriental Research](#) **277** (1990), 121–130.

My earlier, confident attribution of a formidable complex of elements at Gezer to the "Solomonic" era was based not, as Wightman and Finkelstein state so cavalierly, on any biblical-inspired predisposition, but solely on the consensus since Albright's day on what appeared to be clear diagnostic features of tenth to ninth century pottery (especially burnishing). Yet if the methodological challenge of our critics in this issue has any validity (quite apart from the separate issue of whether their reconstructions are "correct"), we must all face the radical consequences. If, after a century of progress in Palestinian archaeology, we cannot attribute anything with certainty to the United Monarchy of Israel, "biblical archaeology" of any persuasion, mine or theirs, has no foundations. If I read this trend-in-the-making correctly, it amounts to a "nihilist agenda."

#### FAUST 2016

Avraham Faust, *The Emergence of Israel and Theories of Ethnogenesis*. In: SUSAN NIDITCH (Hrsg.), *The Wiley Blackwell Companion to Ancient Israel*. ([Chichester 2016](#)), 155–155.

It appears that the beginning of the settlement process in the highlands (on both sides of the Jordan River), in the second half of the thirteenth century BCE, was accompanied by hostile relations between, on the one hand, the Egyptian rulers and administration in Canaan as well as the Canaanite city-states, and, on the other hand, the highland settlers. The latter were apparently pushed (or restricted) to the hilly and remote region by the Egyptian administration that strengthened its hold over Canaan at the time. The highland settlers had an asymmetrical relationship with the powerful Egyptian overlords and the Canaanite cities. Asymmetrical relations between groups typically result in the creation of groups with ethnic consciousness (Comaroff and Comaroff), and it is therefore to be expected that the highland settlers would develop a distinct ethnic identity under those circumstances. This is the Israel that is mentioned in the Merneptah Stele.

This highland group defined itself as egalitarian in contrast to the highly stratified and diverse Canaanite society, and avoided the use of imported or decorated pottery that was prevalent in Canaan at the time. Decorated and imported wares were a kind of nonverbal communication of Canaanite society in the Late Bronze Age. The differences were important to the various groups living there at the time. Complete avoidance of imported and decorated wares transmitted an even stronger message of difference.

During the twelfth century BCE the Egyptian rulers withdrew from the Land of Israel. The Canaanite city-state system that characterized the Late Bronze Age was weakened, and lost whatever influence it had had in the highlands. At this point the highland settlers had little interaction with the people of the lowlands. With the absence of any significant external "other," the highland settlers maintained a symmetrical relationship among themselves, that is, each group of settlers interacted mainly with similar groups, and had no connection with a larger

or stronger group from outside the highlands. Since it is agreed that ethnic consciousness is promoted by asymmetrical, or hierarchical, relations between groups, it is likely that the symmetrical relationship that characterized this time period led to the stressing of “simpler” forms of identity (sometimes labeled totemic identities; Comaroff and Comaroff). In more daily language we can call those identities “local” or “tribal.”

During the eleventh century BCE the highland population once again confronted a powerful external “other” – the Philistines. By that time the Philistines had an economic interest in various regions of Judah and probably also southern Samaria. This strong external pressure led the highlanders to stress their ethnic identity, in relation to the Philistine “other.” In the new ethnic negotiation that ensued, many of the former relevant traits were renegotiated and were vested with new meanings (i.e., undecorated pottery, avoidance of imported pottery, and even the egalitarian ethos), along with new components that were deemed appropriate in the new context (e.g., circumcision and the avoidance of pork). All this left its mark on Israelite identity for hundreds of years, often through a repetitive process of negotiation and renegotiation, and some of those patterns are visible even today.

The “Israel” that is mentioned in the Merenptah Stele is indeed the “Israel” of the Iron Age. And it can be identified archaeologically. The rich archaeological database, and its analysis with appropriate tools, allow us to trace the Israelites and to decipher many of the internal and external processes that characterized the group from the beginning of the Iron Age onward.

#### FINKELSTEIN 1990

Israel Finkelstein, *On Archaeological Methods and Historical Considerations, Iron Age II Gezer and Samaria*. [Bulletin of the American Schools of Oriental Research](#) **277** (1990), 109–119.

The finds of two Iron Age sites—Gezer and Samaria—raise methodological problems regarding the relationships between historical (biblical) text and archaeological data, with implications for the entire Iron II stratigraphy and chronology. Dever reexcavated Gezer in 1984, and Wightman has recently reevaluated the Samaria finds. The results of the new undertaking at Gezer support the Iron II date for the “Outer Wall” of the site. Traces of pre-Omride settlement in Samaria undermine the Kenyon-Wightman view on the stratigraphy and history of the major Iron Age sites of northern Israel.

#### MILLARD 1991

Alan R. Millard, *Texts and Archaeology: Weighing The Evidence, The Case for King Solomon*. [Palestine Exploration Quarterly](#) **123** (1991), 19–27.

Any modern assessment of the ‘Biblical Period’ in Palestine, or a part of it, has to take into account three sources of information: the literary, which is principally biblical, the archaeological, and the epigraphic, the last two both from Palestine and from neighbouring regions. Each source is the realm of specialists who differ from each other to a noticeable extent in presuppositions and methods. Attempts to unite them have frequently been unsuccessful through allowing one element to dominate the others: the problem of keeping a balance between all three lies largely in their interpretation. The first part of this paper will offer a brief consideration of the three strands of evidence; the second part will contest the way they have been handled in a recent essay by J. Maxwell Miller concerning King Solomon’s reign (Miller 1987).

#### MILLER 1987

Max Miller, *Old Testament History and Archaeology*. [Biblical Archaeologist 50 \(1987\), 55–63.](#)

Let me reemphasize that the comments in this paper have been focused intentionally on nonwritten, artifactual evidence. This sort of evidence, which is silent by nature, is not particularly useful for dealing with specific historical questions. Yet the artifactual record does occasionally speak with a distinctive voice that biblical historians should be prepared to hear. Finally, I concede that my distinction between written and nonwritten archaeological evidence, although useful for the purposes of this presentation, is somewhat arbitrary. At least some mention should be made of the increasing number of small inscriptional finds – ostraca, seals, seal impressions, and the like – that are turning up in Palestinian sites. Perhaps the most notable thing to be observed in this regard, however, is that thus far very little inscriptional evidence has emerged in Palestine. Is it too much to hope that sooner or later we will uncover some real archives? If and when we do, especially if we find archival material from the Iron Age, I predict it will revolutionize studies in Old Testament history.

#### SHANKS 1994

Hershel Shanks, *Frank Moore Cross, Conversations with a Bible Scholar*. [\(Washington 1994\).](#)

#### STAGER 1990

Lawrence E. Stager, *Shemer's Estate*. [Bulletin of the American Schools of Oriental Research 277 \(1990\), 93–107.](#)

The Joint Expedition to Samaria dated bedrock installations to Early Bronze I and postulated a gap in occupation until the early ninth century B.C., when King Omri established his capital there. It is suggested that the score of olive- and winepresses cut into the bedrock summit were really part of Shemer's (or better, the Shomron family's) estate, which had been in the family since at least Iron I and included not only the center for processing oil and wine, but also the terraced olive and vineyards that girdled the slopes. Because Samaria I-H pottery spans the 11th and 10th centuries B.C., this site should not be used to lower the Iron Age chronology for other sites in the Levant, Cyprus, or the Aegean.

#### WIGHTMAN 1990

G. J. Wightman, *The Myth of Solomon*. [Bulletin of the American Schools of Oriental Research 277 \(1990\), 5–22.](#)

This paper deals with the chronology of Palestine during Iron Age II, i.e., the tenth and ninth centuries B.C. The author evaluates the development of the conception of Solomonic archaeology from the 1920s to the present at Lachish, Ashdod, and Tel 'Ira', and concludes that this conception is based primarily on intuitive guesses and untested assumptions. He calls for revisions in the stratigraphic sequences at sites like Hazor, Megiddo, and Gezer. The author presents a lower chronology for Iron Age II, based largely on the data from Samaria.

#### WRIGHT 1959

G. Ernest Wright, *Israelite Samaria and Iron Age Chronology*. [Bulletin of the American Schools of Oriental Research 155 \(1959\), 13–29.](#)

This writer for some time has also understood that the first main division in the Palestinian Iron Age occurred at the end of the Philistine Period and the beginning of the United Monarchy (ca. 1000 B.C.). The period from 1000 to



600 B.C. is one cultural unit—not that tenth and seventh century pottery can be confused, but that the period is tied together in a gradual inner development. Furthermore, it has long been clear that the dividing point between new 10th century ceramic developments, on the one hand, and those of the 8th-7th centuries, on the other, did not occur precisely at the division of the kingdom (ca. 922 B.C.), nor even roughly at 900 B. C., but during the course of the ninth century. Such developments would include among the more obvious features the increasing use of wheel-burnishing (“ring-burnishing“), and substantial typological modifications in small juglets and cooking pots. On the basis of the discoveries at Hazor since 1955 the Israeli archaeologists now suggest that this dividing point can be more precisely fixed. That is between Hazor VIII and VII, at the conclusion of the Omri Dynasty, when the revolts of Jehu in Israel and Athaliah in Judah took place, when the conquered territories in Transjordan were lost and Aramaean pressure from the northeast increased.

## Datierung Ostasien

MEYER 2017

M. C. Meyer, M. S. Aldenderfer, Z. Wang, D. L. Hoffmann, J. A. Dahl, D. Degering, W. R. Haas & F. Schlütz, *Permanent human occupation of the central Tibetan Plateau in the early Holocene*. [science 355 \(2017\), 64–67](#).

s355-0064-Supplement.pdf

Current models of the peopling of the higher-elevation zones of the Tibetan Plateau postulate that permanent occupation could only have been facilitated by an agricultural lifeway at  $\approx 3.6$  thousand calibrated carbon-14 years before present. Here we report a reanalysis of the chronology of the Chusang site, located on the central Tibetan Plateau at an elevation of  $\approx 4270$  meters above sea level. The minimum age of the site is fixed at  $\approx 7.4$  thousand years (thorium-230/uranium dating), with a maximum age between  $\approx 8.20$  and 12.67 thousand calibrated carbon-14 years before present (carbon-14 assays). Travel cost modeling and archaeological data suggest that the site was part of an annual, permanent, preagricultural occupation of the central plateau. These findings challenge current models of the occupation of the Tibetan Plateau.

## Klima

HAND 2017

Eric Hand, *Fossil leaves bear witness to ancient carbon dioxide levels*. [science 355 \(2017\), 14–15](#).

Relics warn that climate may be more sensitive to atmospheric CO<sub>2</sub> than models predict.

ZICKFELD 2017

Kirsten Zickfeld, Susan Solomon & Daniel M. Gilford, *Centuries of thermal sea-level rise due to anthropogenic emissions of short-lived greenhouse gases*. [PNAS 114 \(2017\), 657–662](#).

Mitigation of anthropogenic greenhouse gases with short lifetimes (order of a year to decades) can contribute to limiting warming, but less attention has been

paid to their impacts on longer-term sea-level rise. We show that short-lived greenhouse gases contribute to sealevel rise through thermal expansion (TSLR) over much longer time scales than their atmospheric lifetimes. For example, at least half of the TSLR due to increases in methane is expected to remain present for more than 200 y, even if anthropogenic emissions cease altogether, despite the 10-y atmospheric lifetime of this gas. Chlorofluorocarbons and hydrochlorofluorocarbons have already been phased out under the Montreal Protocol due to concerns about ozone depletion and provide an illustration of how emission reductions avoid multiple centuries of future TSLR. We examine the “world avoided” by the Montreal Protocol by showing that if these gases had instead been eliminated in 2050, additional TSLR of up to about 14 cm would be expected in the 21st century, with continuing contributions lasting more than 500 y. Emissions of the hydrofluorocarbon substitutes in the next half-century would also contribute to centuries of future TSLR. Consideration of the time scales of reversibility of TSLR due to short-lived substances provides insights into physical processes: sea-level rise is often assumed to follow air temperature, but this assumption holds only for TSLR when temperatures are increasing. We present a more complete formulation that is accurate even when atmospheric temperatures are stable or decreasing due to reductions in short-lived gases or net radiative forcing.

**Keywords:** climate change | sea-level rise | greenhouse gases | reversibility | Montreal Protocol

**Significance:** Human activities such as fossil-fuel burning have increased emissions of greenhouse gases (GHGs), which have warmed the Earth’s atmosphere and ocean and caused sea levels to rise. Some of these GHGs (e.g., methane) have atmospheric lifetimes of decades or less, whereas others (e.g., carbon dioxide) persist for centuries to millennia. As policy seeks to reduce climate changes, it is important to understand how mitigation of different gases each contributes to this goal. Our study shows that short-lived GHGs contribute to thermal expansion of the ocean over much longer time scales than their atmospheric lifetimes. Actions taken to reduce emissions of short-lived gases could mitigate centuries of additional future sea-level rise.

## Kultur

DIETLER 1990

Michael Dietler, *Driven by Drink, The Role of Drinking in the Political Economy and the Case of Early Iron Age France*. [Journal of Anthropological Archaeology](#) **9** (1990), 352–406.

The practice of drinking alcoholic beverages has several characteristic important social roles in traditional small-scale societies, particularly in terms of political economy. Cross-cultural survey of ethnographic data reveals that drink is very frequently a fundamental social artifact which plays an integral role in implementing the social relations expressed and created through hospitality. This intimate association with the institution of hospitality, and its frequent ritual and symbolic significance, imbue drinking with a potent social value which is important in its many economic and political roles. It is widely employed in the work-party feast as a mechanism of labor mobilization, and in the implementation of both institutionalized political authority and the informal power associated with leadership in societies without specialized political roles. Moreover, drinking can have a profound influence in producing changes in social relations, and consideration of drinking patterns can be very informative about society and culture in general. The relevance of this anthropological perspective on drinking to the analysis of

archaeological data is demonstrated through a model which offers fresh insights for the interpretation of a specific archaeological problem: the process of trade and culture contact between the Greek and Etruscan states and the indigenous peoples of Early Iron Age France.

## Neolithikum

DÜRING 2013

Bleda S. Düring, *Breaking the Bond, Investigating The Neolithic Expansion in Asia Minor in the Seventh Millennium BC*. [Journal of World Prehistory](#) **26** (2013), 75–100.

In the early seventh millennium BC an expansion of the Neolithic economy and sedentism took place in Asia Minor. This occurred nearly two millennia after the emergence of Neolithic societies in southern central Anatolia, which raises the question how this expansion occurred, and why it came about at this particular moment. This paper considers various elements that might have played a role in this expansion episode, such climate change, demography, and agricultural and social changes.

Keywords: Prehistory | Near East | Neolithic expansion | Asia Minor

## Story or Book

ENGEL 2017

Megan Engel, *Mysteries of the mundane, A physicist reveals the science behind familiar phenomena*. [science](#) **355** (2017), 33–33.

Storm in a Teacup. The Physics of Everyday Life. Helen Czerski. Norton, 2017. 285 pp.

Storm in a Teacup is organized as a series of chapters, each focused on a classical physics concept. They begin with relatable, at-home examples; proceed to narrative anecdotes from Czerski's own life and research; include some historical factoids about which humans first wrestled with the ideas; and, finally, extrapolate to large-scale applications such as the motion of the continents and the orbit of the International Space Station.

The book's virtues, however, far outweigh any shortcomings. This equation-free book is an ideal gift for scientists of all stripes, anyone teaching science, and even physicsaverse friends.