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References

Afrika

Garcin 2018

Yannick Garcin et al., *Early anthropogenic impact on Western Central African rainforests 2,600 y ago.* PNAS **115** (2018), 3261–3266.

pnas115-03261-Supplement1.pdf, pnas115-03261-Supplement2.xlsx, pnas115-03326-Supplement.pdf

Yannick Garcin, Pierre Deschamps, Guillemette Ménot, Geoffroy de Saulieu, Enno Schefuß, David Sebag, Lydie M. Dupont, Richard Oslisly, Brian Brademann, Kevin G. Mbusnum, Jean-Michel Onana, Andrew A. Ako, Laura S. Epp, Rik Tjallingii, Manfred R. Strecker, Achim Brauer & Dirk Sachse

A potential human footprint on Western Central African rainforests before the Common Era has become the focus of an ongoing controversy. Between 3,000 y ago and 2,000 y ago, regional pollen sequences indicate a replacement of mature rainforests by a forest–savannah mosaic including pioneer trees. Although some studies suggested an anthropogenic influence on this forest fragmentation, current interpretations based on pollen data attribute the "rainforest crisis" to climate change toward a drier, more seasonal climate. A rigorous test of this hypothesis, however, requires climate proxies independent of vegetation changes. Here we resolve this controversy through a continuous 10,500-y record of both vegetation and hydrological changes from Lake Barombi in Southwest Cameroon based on changes in carbon and hydrogen isotope compositions of plant waxes. d13C-inferred vegetation changes confirm a prominent and abrupt appearance of C4 plants in the Lake Barombi catchment, at 2,600 calendar years before AD 1950 (cal y BP), followed by an equally sudden return to rainforest vegetation at 2,020 cal y BP. .D values from the same plant wax compounds, however, show no simultaneous hydrological change. Based on the combination of these data with a comprehensive regional archaeological database we provide evidence that humans triggered the rainforest fragmentation 2,600 y ago. Our findings suggest that technological developments, including agricultural practices and iron metallurgy, possibly related to the large-scale Bantu expansion, significantly impacted the ecosystems before the Common Era.

Keywords: Western Central Africa | late Holocene | rainforest crisis | paleohydrology | human activity

Significance: Modern human societies live in strongly altered ecosystems. However, anthropogenic environmental disturbances occurred long before the industrial revolution. About 2,600 y ago, a forest–savannah mosaic replaced dense rainforests in Western Central Africa. This rainforest crisis was previously attributed either to the impact of climate change or, to a lesser extent, to the expansion of Bantu peoples through Central Africa. A 10,500-y sedimentary record from Lake Barombi, Southwest Cameroon, demonstrates that the rainforest crisis was not associated with any significant hydrological change. Based on a detailed investigation of a regional archaeological database, we present evidence that humans altered the rainforest ecosystem and left detectable traces in the sediments deposited in Lake Barombi.

Malhi 2018

Yadvinder Malhi, *Ancient deforestation in the green heart of Africa.*

PNAS **115** (2018), 3202–3204.

Can we be sure that the lack of a hydrogen isotope anomaly during the LHRC is a sure indicator of there being no drying event? Although the leaf wax alkane analysis breaks away from the dependence of inferring climate from pollen, it is still a plantderived signature. Is it possible that pearl millet or other crops carry a sufficiently distinct hydrogen isotopic signature in their leaf waxes that confounds the interpretation in terms of rainfall? The study tries to account the uncertainty in isotopic signature induced by this isotopic signature for this vegetation shift, and concludes that any such effect would be small. Another possibility is that the isotopic signature of precipitation is a misleading signature of total annual precipitation change, or that the total precipitation is a poor indicator of the seasonal variation of water stress, which is a more pertinent climate variable for vegetation limits.

Aktuell

Editorial 2018

Use and abuse of ancient DNA. nature **555** (2018), 559.

Researchers in several complementary disciplines need to tread carefully over the shared landscapes of the past.

Hearty 2018

Paul J. Hearty & Blair R. Tormey, *Listen to the whisper of the rocks, telling their ancient story*. PNAS **115** (2018), E2902–E2903.

Rovere et al.'s premise that the megaboulders "were lifted or rolled from the cliff edge to their current position" is untenable, as the cliff-top stratum is 5e oolite, distinct from the megaboulders. Therefore, their estimate of ≈10 m/s to transport the megaboulders is an absolute minimum. Far greater energy would be required to transport the megaboulders from the basal strata of the sea cliff during MIS 5e. Megaboulders lying tens to hundreds of meters landward of the modern coastline were also not considered. The premise of waves peeling off cliff tops and depositing the megaboulders during higher sea levels does not accord with field observations. If correct, recent storm waves should be depositing similar sized megaboulders near present sea level on Eleuthera and along the rocky coastlines throughout the Bahamas, which is not the case.

Rovere 2018

Alessio Rovere et al., *Use the scientificmethod to test geologic hypotheses, because rocks do not whisper, Reply to Hearty and Tormey*. PNAS **115** (2018), E2904–E2905.

Alessio Rovere, Elisa Casella, Daniel L. Harris, Thomas Lorscheid, Napayalage A. K. Nandasena, Blake Dyer, Michael R. Sandstrom, Paolo Stocchi, William J. D'Andrea & Maureen E. Raymo

Only two mega-boulder "physical properties" were reported by Hearty (5): (i) cementation, which in Bahamian outcrops is spatially heterogenous and reflects exposure history, not ages or stratigraphy; and (ii) grain composition, based on "hand-lens and thin-section analysis" from which no data are provided, and from which the boulders were characterized as "generally oolitic/peloidal" (5). This grain composition describes every cliff unit at this location (6) and neither criteria can speak to megaboulder provenance.

van Zonneveld 2018

Maarten van Zonneveld, Nerea Larranaga, Benjamin Blonder, Lidio Coradin, José I. Hormaza & Danny Hunter, *Human diets drive range expansion of megafauna-dispersed fruit species.* PNAS **115** (2018), 3326–3331.

pnas115-03428-Supplement.pdf

Neotropical fruit species once dispersed by Pleistocene megafauna have regained relevance in diversifying human diets to address malnutrition. Little is known about the historic interactions between humans and these fruit species. We quantified the human role in modifying geographic and environmental ranges of Neotropical fruit species by comparing the distribution of megafauna-dispersed fruit species that have been part of both human and megafauna diets with fruit species that were exclusively part of megafauna diets. Three quarters of the fruit species that were once dispersed by megafauna later became part of human diets. Our results suggest that, because of extensive dispersal and management, humans have expanded the geographic and environmental ranges of species that would otherwise have suffered range contraction after extinction of megafauna. Our results suggest that humans have been the principal dispersal agent for a large proportion of Neotropical fruit species between Central and South America. Our analyses help to identify range segments that may hold key genetic diversity resulting from historic interactions between humans and these fruit species. These genetic resources are a fundamental source to improve and diversify contemporary food systems and to maintain critical ecosystem functions. Public, private, and societal initiatives that stimulate dietary diversity could expand the food usage of these megafauna-dispersed fruit species to enhance human nutrition in combination with biodiversity conservation.

Keywords: human–plant interactions | Pleistocene megafauna | Latin America | plant distribution | plant genetic resources

Significance: Neotropical fruit species once dispersed by megafauna have regained relevance for diversifying human diets to address malnutrition. Little is known about the historic interactions between humans and these fruit species. We quantified the human role in modifying distribution ranges of Neotropical fruit species by comparing the distribution of fruit species that have been part of both human and megafauna diets with fruit species that were exclusively part of megafauna diets. Our results show that human food usage has expanded the distribution of species that would otherwise have suffered range contraction after extinction of megafauna. Our analyses help in identifying range segments of fruit species that may hold key genetic diversity to sustain food systems and to maintain critical ecosystem functions.

Anthropologie

Valdiosera 2018

Cristina Valdiosera et al., *Four millennia of Iberian biomolecular prehistory illustrate the impact of prehistoric migrations at the far end of Eurasia.* PNAS **115** (2018), 3428–3433.

Cristina Valdiosera, Torsten Günther, Juan Carlos Vera-Rodríguez, Irene Ureña, Eneko Iriarte, Ricardo Rodríguez-Varela, Luciana G. Simões, Rafael M. Martínez-Sánchez, Emma M. Svensson, Helena Malmström, Laura Rodríguez, José-María Bermúdez de Castro, Eudald Carbonell, Alfonso Alday, José Antonio Hernández Vera, Anders Götherström, José-Miguel Carretero, Juan Luis Arsuaga, Colin I. Smith & Mattias Jakobsson

Population genomic studies of ancient human remains have shown how modern-day European population structure has been shaped by a number of prehistoric migrations. The Neolithization of Europe has been associated with large-scale migrations from Anatolia, which was followed by migrations of herders from the Pontic steppe at the onset of the Bronze Age. Southwestern Europe was one of the last parts of the continent reached by these migrations, and modern-day populations from this region show intriguing similarities to the initial Neolithic migrants. Partly due to climatic conditions that are unfavorable for DNA preservation, regional studies on the Mediterranean remain challenging. Here, we present genome-wide sequence data from 13 individuals combined with stable isotope analysis from the north and south of Iberia covering a four-millennial temporal transect (7,500–3,500 BP). Early Iberian farmers and Early Central European farmers exhibit significant genetic differences, suggesting two independent fronts of the Neolithic expansion. The first Neolithic migrants that arrived in Iberia had low levels of genetic diversity, potentially reflecting a small number of individuals; this diversity gradually increased over time from mixing with local hunter-gatherers and potential population expansion. The impact of post-Neolithic migrations on Iberia was much smaller than for the rest of the continent, showing little external influence from the Neolithic to the Bronze Age. Paleodietary reconstruction shows that these populations have a remarkable degree of dietary homogeneity across space and time, suggesting a strong reliance on terrestrial food resources despite changing culture and genetic make-up.

Keywords: archaeogenomics | Iberia | migrations | diversity | palaeodiet

Significance: The gene pool of modern Europeans was shaped through prehistoric migrations that reached the Western Mediterranean last. Obtaining biomolecular data has been challenging due to poor preservation related to adverse climatic conditions in this region. Here, we study the impact of prehistoric (Neolithic– Bronze Age) migrations in Iberia by analyzing genomic and dietary data, demonstrating that farming practices were introduced by a population genetically distinct from the first farmers in central and northern Europe. After recovering from a founder bottleneck, these first farmers mixed with local hunter-gatherers. Finally, post-Neolithic migrations had a much smaller impact on the Iberian gene pool than they had in other parts of Europe. Stable isotope analysis reveals a homogenous terrestrial diet throughout this period.

Archäologie

Ceram 1955

C. W. Ceram, *Entdeckung des Hethiter-Reiches*, *Enge Schlucht und Schwarzer Berg.* (Klagenfurt ohne Jahr).

Bibel

Faust 2014

Avraham Faust, *Highlands or Lowlands? Reexamining Demographic Processes in Iron Age Judah.* Ugarit-Forschungen **45** (2014), 111–142.

The settlement of Judah in the Iron Age had received a great deal of scholarly attention, and it is commonly agreed that after “humble beginnings” in the Iron Age I, Judah reached an unparalleled demographic peak in the later part of the Iron Age II. The Shephelah, the low hilly region to the west of the Judean highlands, is commonly regarded as the demographic and settlement hub of Judah.

The present paper reassesses the relative importance of the various regions of Judah, and especially that of the highlands versus that of the Shephelah, during the various stages of the Iron Age. A thorough examination of the data reveals that the highlands, while underrepresented in the archaeological research, were center of settlement of Judah throughout the Iron Age, although at times the demographic difference between the regions was smaller than in others.

Faust 2017

Avraham Faust, *An All-Israelite Identity, Historical Reality or Biblical Myth?* In: Justin Lev-Tov, Paula Hesse & Allan Gilbert (Hrsg.), *The Wide Lens in Archaeology, Honoring Brian Hesse's Contributions to Anthropological Archaeology.* Archaeobiology 2 (Atlanta 2017), 169–190.

The affiliation between (most of) the inhabitants of Israel and Judah, is quite clear from an examination of the archaeological record. Many traits, which exhibit nonrandom distribution with sharp boundaries, were common to most inhabitants of these two polities (covering distinct geographical zones), but are missing from neighboring regions. This demonstrates that the affinity between the populations was real, despite the political fragmentation.

This should not come as a surprise, however, as the only reason to expect any overlap between ethnic identities and political boundaries is based on modern precepts, and not on the situation in antiquity.

It is clear that this Israelite identity encompassed various local, totemic, and tribal identities, that sometimes competed with the "larger" one (that combined both Israel and Judah), but did not negate its existence. It is possible that among these local identities were also identities that overlapped with the political boundaries, that is, one for the southern kingdom and one for the northern one. Should such be discovered in the future, it is clear that they were more marginal than the common one that united both Israel and Judah. But such identities are not mutually exclusive.

The critique of the common identity of Israel and Judah has some major flaws. To a large extent it is built on a projection of the nation-state into the past, and gives too much weight to political boundaries, which could have very limited meaning to people in antiquity, and did not necessarily exert much influence on their identity. In addition, it ignores the multiplicity of identities that people have. The critiques, apparently, intend to stress the unique identity of each polity. But people have many identities, based on family affiliation (real or fictive), settlement, region, "tribe," and so on. The existence of a separate Judahite identity, even if proven, does not negate the importance of the "all Israelite" identity, which exerted so much influence on the archaeological record.

Friedman 2003

Richard Friedman, *The Bible with sources revealed, A new view into the five books of Moses.* (San Francisco 2005).

Rajak 1996

Tessa Rajak, *Hasmonean Kingship and the Invention of Tradition.* In: Per Bilde, Troels Engberg-Pedersen, Lise Hannestad & Jan Zahle (Hrsg.), *Aspects of Hellenistic Kingship.* Studies in Hellenistic civilization 7 (Aarhus 1996), 99–115.

The recovery of Hasmonean ideology, possible only to a limited extent, depends principally on the interpretation of complex literary material. Of the evidence

yielded by archaeology, coinage has the most to contribute. But even 1 Maccabees, on which we are greatly dependent, is not an official history, even if, as we have seen, the old view of the author as a supporter of the dynasty still has much to recommend.

But we do know enough to say that the rediscovery, or invention of native tradition is, at any rate, a central preoccupation, pervading the Hasmonean high priesthood and kingship. This process is a key to interpreting the mentality and the image of these rulers. Some light might also be shed on the activities of other native rulers, where the evidence is considerably poorer still, and where the native culture is less tangible. Thus the prominence of this aspect of Hasmonean activity renders the study of their government a fruitful and important one, not just in a conventional narrative of events, but in any modern, post-colonial Seleucid history. Finally, it is worth observing that such a line of approach brings with it the great advantage of setting an agenda which does not derive from the over-discussed problematic of Hellenization.

Datierung

Lauer 2018

Tobias Lauer & Marcel Weiss, *Timing of the Saalian and Elsterian glacial cycles and the implications for Middle-Pleistocene hominin presence in central Europe*. Scientific Reports **8** (2018), 5111. DOI:10.1038/s41598-018-23541-w.

By establishing a luminescence-based chronology for fluvial deposits preserved between the Elsterianand Saalian tills in central Germany, we obtained information on the timing of both the Middle Pleistocene glacial cycles and early human appearance in central Europe. The luminescence ages illustrate different climatic driven fluvial aggradation periods during the Saalian glacial cycle spanning from 400–150 ka. The ages of sediments directly overlying the Elsterian till are approximately 400 ka and prove that the first extensive Fennoscandian ice sheet extension during the Quaternary correlates with MIS 12 and not with MIS 10. Furthermore, the 400 ka old fluvial units contain Lower Paleolithic stone artefacts that document the first human appearance in the region. In addition, we demonstrate that early MIS 8 is a potential date for the onset of the Middle Paleolithic in central Germany, as Middle Paleolithic stone artefacts are correlated with fluvial units deposited between 300 ka and 200 ka. However, the bulk of Middle Paleolithic sites date to MIS 7 in the region. The fluvial units preserved directly under the till of the southernmost Saalian ice yield an age of about 150 ka, and enable a correlation of the Drenthe stage to late MIS 6.

Judentum

Cohen 2017

Shaye J. D. Cohen, *The Ways That Parted, Jews, Christians, and Jewish-Christians, ca. 100–150 ce*. In: Joshua Schwartz & Peter J. Tomson (Hrsg.), *Jews and Christians in the First and Second Centuries, The Interbellum 70–132* ce. Compendia Rerum Iudaicarum ad Novum Testamentum 15 (Leiden 2017), 307–339.

The evidence surveyed here supports the view, once regnant among scholars but now unaccountably out of fashion, that by the early second century CE Jews (that

is, ethnic Jews who do not believe in Christ) and Christians (that is, ethnic gentiles who do believe in Christ) constituted separate communities, each with its own identity, rituals, institutions, authority figures, and literature. To be sure we may assume that there were Jewish communities of various sorts, for example rabbinic and non-rabbinic, Hebrew-reading and non- Hebrew reading, and we may assume that there were Christian communities of various sorts, for example proto-orthodox and 'Gnostic', so generalizations are hazardous. But all the extant evidence points in the same direction. There were no mixed communities of Jews and Christians, except of course for Christian communities which numbered among their members Jews who had converted to Christianity, and except for Jewish communities which numbered among their members Christians who had converted to Judaism. But absent conversion, the boundaries between the Jewish and the Christian communities were clear enough and stable enough. As the century proceeded, the boundary would become ever clearer and ever more stable.

Kultur

D'Anna 2015

Maria Bianca D'Anna et al., *Food and Urbanization, Material and Textual Perspectives on Alimentary Practice in Early Mesopotamia.* Origini **37** (2015), 7–88.

Maria Bianca D'Anna, Carolin Jauß, J. Cale Johnson, Klaus Wagensonner, Susan Pollock, Eva Rosenstock, Rémi Berthon, Jacob Dahl & Hagan Brunke

Food has played a key role in the emergence of urbanization in Mesopotamia throughout the fourth millennium BCE. Although the food itself is only rarely preserved, we do have a great deal of evidence for the production, redistribution and administration of food and beverages in the Late Uruk period archaeological and textual record. The papers collected here derive from a workshop of the same name that took place in Berlin in March 2014 at the Freie Universität Berlin and was funded by Institut Européen d'Histoire et des Cultures de l'Alimentation in Tours. The workshop brought together specialists from different disciplines such as archaeology, philology and archaeozoology, all of which take the material remains of the Mesopotamian Late Uruk period as their object of investigation. Through the combination of different datasets on Uruk foodways, these papers provide a snapshot of current research on Late Uruk food procurement, processing, consumption and administration.

Keywords: Food | alimentary practices | Mesopotamia | Late Uruk.

Methoden

Callaway 2018

Ewen Callaway, *The Battle for Common Ground.* nature **555** (2018), 573–576.

Ancient genomes are revolutionizing the study of human prehistory but sometimes straining the relationships between archaeologists and geneticists.

Some archaeologists are ecstatic over the possibilities offered by the new technology. Ancient-DNA work has breathed new life and excitement into their work, and they are beginning once-inconceivable investigations, such as sequencing the genome of every individual from a single graveyard. But others are cautious. "Half the archaeologists think ancient DNA can solve everything. The other half think ancient DNA is the devil's work," quips Philipp Stockhammer, a researcher at

Ludwig-Maximilians University in Munich, Germany, who works closely with geneticists and molecular biologists at an institute in Germany that was set up a few years ago to build bridges between the disciplines. The technology is no silver bullet, he says, but archaeologists ignore it at their peril.

This isn't the first time archaeologists have had to contend with transformative technology. "The study of prehistory today is in crisis," wrote Cambridge archaeologist Colin Renfrew in his 1973 book Before Civilization, describing the impact of radiocarbon dating. It wasn't an easy changeover — early carbondating efforts were off by hundreds of years or more — but the technique eventually allowed archaeologists to stop spending most of their time worrying about the age of bones and artefacts and focus instead on what the remains meant, argues Kristian Kristiansen, who studies the Bronze Age at the University of Gothenburg in Sweden. "Suddenly there was a lot of free intellectual time to start thinking about prehistoric societies and how they are organized." Ancient DNA now offers the same opportunity, says Kristiansen, who has become one of his field's biggest cheerleaders for the technology.

Mittelpaläolithikum

Hajdinjak 2018

Mateja Hajdinjak et al., *Reconstructing the genetic history of late Neanderthals*. nature **555** (2018), 652–656.

n555-0652-Supplement.pdf

Mateja Hajdinjak, Qiaomei Fu, Alexander Hübner, Martin Petr, Fabrizio Mafessoni, Steffi Grote, Pontus Skoglund, Vagheesh Narasimham, Hélène Rougier, Isabelle Crevecoeur, Patrick Semal, Marie Soressi, Sahra Talamo, Jean-Jacques Hublin, Ivan Gušic, Željko Kucan, Pavao Rudan, Liubov V. Golovanova, Vladimir B. Doronichev, Cosimo Posth, Johannes Krause, Petra Korlevic, Sarah Nagel, Birgit Nickel, Montgomery Slatkin, Nick Patterson, David Reich, Kay Prüfer, Matthias Meyer, Svante Pääbo & Janet Kelso

Although it has previously been shown that Neanderthals contributed DNA to modern humans1,2, not much is known about the genetic diversity of Neanderthals or the relationship between late Neanderthal populations at the time at which their last interactions with early modern humans occurred and before they eventually disappeared. Our ability to retrieve DNA from a larger number of Neanderthal individuals has been limited by poor preservation of endogenous DNA3 and contamination of Neanderthal skeletal remains by large amounts of microbial and present-day human DNA3–5. Here we use hypochlorite treatment6 of as little as 9 mg of bone or tooth powder to generate between 1- and 2.7-fold genomic coverage of five Neanderthals who lived around 39,000 to 47,000 years ago (that is, late Neanderthals), thereby doubling the number of Neanderthals for which genome sequences are available. Genetic similarity among late Neanderthals is well predicted by their geographical location, and comparison to the genome of an older Neanderthal from the Caucasus2,7 indicates that a population turnover is likely to have occurred, either in the Caucasus or throughout Europe, towards the end of Neanderthal history. We find that the bulk of Neanderthal gene flow into early modern humans originated from one or more source populations that diverged from the Neanderthals that were studied here at least 70,000 years ago, but after they split from a previously sequenced Neanderthal from Siberia2 around 150,000 years ago. Although four of the Neanderthals studied here post-date the putative arrival of early modern humans into Europe, we do not detect any recent gene flow from early modern humans in their ancestry.

Neolithikum

Strien 2018

Hans-Christoph Strien, *Westexpansion und Regionalisierung der Ältesten Bandkeramik*. Kommunikation und Wandel 1 (Kerpen-Loogh 2018).

Story or Book

Skibba 2018

Ramin Skibba, *Quantum-theory wars*. nature **555** (2018), 882–884.

Ramin Skibba explores a history of unresolved questions beyond the Copenhagen interpretation.

What Is Real?: The Unfinished Quest for the Meaning of Quantum Physics. Adam Becker. Basic: 2018.

Sifting through the history, Becker shows how Bohr, as an anti-realist, brought to his side many rising physicists, including Heisenberg, Wolfgang Pauli and Max Born. Einstein, however, persistently argued that the Copenhagen interpretation was incomplete. He conjectured that there might be hidden variables or processes underlying quantum phenomena; or perhaps 'pilot waves', proposed by de Broglie, govern the behaviour of particles. In 1932, mathematician John von Neumann produced a proof that there could be no hidden variables in quantum mechanics. Although mathematically correct, it was revealed to be flawed decades later. But the damage had been done: the potentially viable alternatives conceived by Einstein and de Broglie remained relatively unexplored. The Copenhagen interpretation had taken hold by the 1930s, and textbooks today state that Bohr's view 'won'.

But what if a field picks the wrong paradigm? Becker shows how, in the 1950s and 1960s, a handful of physicists dusted off the theories of Einstein and de Broglie and turned them into a fully fledged interpretation capable of shaking up the status quo. David Bohm argued that particles in quantum systems existed whether observed or not, and that they have predictable positions and motions determined by pilot waves. John Bell then showed that Einstein's concerns about local i ty and incompleteness in the Copenhagen interpretation were valid. It was he who refuted von Neumann's proof by revealing that it ruled out only a narrow class of hidden-variables theories. The scientific community greeted Bohm's ideas coolly. A former mentor, J. Robert Oppenheimer, said: "if we cannot disprove Bohm, then we must agree to ignore him". And, as Becker shows, Bohm's leftist views led to an appearance before the House Un-American Activities Committee, and subsequent ostracization.