# References

## Afrika

ASOMBANG 2004

Raymond N. Asombang, *Interpreting standing stones in Africa, A case study in north-west Cameroon.* Antiquity **78** (2004), 294–305.

Combining history and ethnography with a survey on the ground, the author shows how the megalithic monuments of Cameroon were the remains of many different kinds of site. Some were house platforms, others places for washing dishes. Others are certainly ceremonial, for family and kin-group meetings.The memory and opinion of current residents adds a fascinating aside to the function of these monuments, probably introduced four centuries ago, and their subsequent rôles in society.

Keywords: Africa | Cameroon | Iron Age | megaliths | ethnoarchaeology

## Aktuell

FLAXMAN 2020

Seth Flaxman, Swapnil Mishra, James Scott, Neil Ferguson, Axel Gandy & Samir Bhatt, *Reply to: The effect of interventions on COVID-19.* nature **588** (2020), e29–e32. DOI:10.1038/s41586-020-3026-x.

Because our goal was to estimate which NPIs worked consistently in most countries, we argue that an analysis of the effectiveness of NPIs should be robust to leaving any one country out. In Extended Data Fig. 1 of this Reply we compare results from the full pool model (used by Soltesz et al.), the model used in Flaxman et al., and a partial pool model, removing one country at a time from the input data. In the partial pool model4,6,7, all NPIs have both a random effect component shared between all countries and a country-specific random effect (via a Gaussian shrinkage prior).

In the full pool model, results for effect sizes are dependent on whether Sweden is included, hence Sweden has a very high statistical influence8. As seen in Extended Data Fig. 1, when Sweden is left out of the full pool model, we recover the results from Flaxman et al.2, but when Sweden is included the estimates change markedly. This happens because the full pool model attributes a large effect size to the ban on public events to explain the Swedish death data.

McCONNELL 2020

Joseph R. McConnell et al., *Agricultural failures logically link historical events to extreme climate following the 43 BCE Okmok eruption, Reply to Strunz and Braeckel.* PNAS **117** (2020), 32209–32210.

While delineating integrated socioenvironmental mechanisms clearly is desirable, quantifying such mechanisms and feedbacks is difficult over such a distance of time and based on such thin ancient sources, leading us to caution against trying to establish direct causal linkages between the climate effects of the 43 BCE Okmok eruption and historical events (1). Rather than black-box determinism, however,

we suggest an obvious yet fundamental and far-reaching mechanism linking the historical events reported in the ancient sources to the aftermath of the Okmok eruption: extreme climate and disruptions to food production in vulnerable, largely agrarian societies.

Joseph R. McConnell, Michael Sigl, Gill Plunkett, Andrew I. Wilson, Joseph G. Manning, Francis Ludlow & Nathan J. Chellman

## Mitze 2020

Timo Mitze, Reinhold Kosfeld, Johannes Rode & Klaus Wälde, *Face masks considerably reduce COVID-19 cases in Germany.* PNAS **117** (2020), 32293–32301. DOI:10.1073/pnas.2015954117.

pnas117-32293-Supplement1.pdf, pnas117-32293-Supplement2.pdf

We use the synthetic control method to analyze the effect of face masks on the spread of COVID-19 in Germany. Our identification approach exploits regional variation in the point in time when wearing of face masks became mandatory in public transport and shops. Depending on the region we consider, we find that face masks reduced the number of newly registered severe acute respiratory syndrome coronavirus 2 infections between 15 % and 75 % over a period of 20 days after their mandatory introduction. Assessing the credibility of the various estimates, we conclude that face masks reduce the daily growth rate of reported infections by around 47 %.

Keywords: COVID-19 | public health measures | face masks | synthetic control method

Significance: Mitigating the spread of COVID-19 is the objective of most governments. It is of utmost importance to understand how effective various public health measures are. We study the effectiveness of face masks. We employ public regional data about reported severe acute respiratory syndrome coronavirus 2 infections for Germany. As face masks became mandatory at different points in time across German regions, we can compare the rise in infections in regions with masks and regions without masks. Weighing various estimates, we conclude that 20 d after becoming mandatory face masks have reduced the number of new infections by around 45 %. As economic costs are close to zero compared to other public health measures, masks seem to be a cost-effective means to combat COVID-19.

## Soltesz 2020

Kristian Soltesz et al., *The effect of interventions on COVID-19.* nature **588** (2020), e26–e28. DOI:10.1038/s41586-020-3025-y.

It seems unlikely to be a result of circumstance that lockdown was implemented in the 10 countries in which it had a large effect on Rt, and omitted in the single country in which the public events ban instead had a similar effect (sufficient to drive Rt below 1). An alternative hypothesis is that the infection-to-death distribution used by the model, combined with the death data that were available by early May, makes the model ascribe almost all of the reduction in Rt to the last intervention that was implemented in each country. This hypothesis is supported by executing the model code3,5 with different interventions being defined as having occurred last in the country in which no lockdown occurred (Sweden), as shown in Fig. 2.

Exchanging the last intervention for a different one is not merely interesting from a theoretical perspective. For example, it is hard to judge whether transitioning to online teaching at high school and university levels, while keeping elementary schools and preschools open, constitutes a school closure or not. Similarly, the crowd-size limit associated with the public events ban NPI remains a parameter to be decided by the modeller.

Kristian Soltesz, Fredrik Gustafsson, Toomas Timpka, Joakim Jaldén, Carl Jidling, Albin Heimerson, Thomas B. Schön, Armin Spreco, Joakim Ekberg, Örjan Dahlström, Fredrik Bagge Carlson, Anna Jöud & Bo Bernhardsson

## Strunz 2020

Sebastian Strunz & Oliver Braeckel, *Did volcano eruptions alter the trajectories of the Roman Republic and the Ptolemaic Kingdom? Moving beyond black-box determinism.* PNAS **117** (2020), 32207–32208.

Quantitative approaches demonstrate how thresholds in the underlying system variables may engender nonlinear change and cascading feedbacks. Note that for systems with self-organizing criticality, invariance between forcing mechanisms and system output makes causal inferences nearly impossible—tracing large-scale societal events back to environmental shocks, then, is futile: "Any event of any scale might have acted as the trigger" (ref. 4, p. 309).

# Anthropologie

## Eren 2020

Metin I. Eren, Stephen J. Lycett & Masaki Tomonaga, *Underestimating Kanzi? Exploring Kanzi-Oldowan comparisons in light of recent human stone tool replication.* Evolutionary Anthropology **29** (2020), 310–316.

The knapping experiments with Kanzi, a bonobo, are among the most insightful experiments into Oldowan technology ever undertaken. Comparison of his artifacts against archeological material, however, indicated he did not produce Oldowan lithic attributes precisely, prompting suggestions that this indicated cognitive or biomechanical impediments. The literature describing the learning environment provided to Kanzi, we suggest, indicates alternative factors. Based on consideration of wild chimpanzee learning environments, and experiments with modern knappers that have looked at learning environment, we contend that Kanzi's performance was impeded by an impoverished learning environment compared to those experienced by novice Oldowan knappers. Such issues are precisely those that might be tested via a repeat study, but in this case, practical and ethical constraints likely impede this possibility. We propose experiments that may be relevant to drawing conclusions from Kanzi's experiments that may not need to use non-human primates, thus bypassing some of these issues.

Keywords: bonobo | experiments | Kanzi | learning | Oldowan | stone tools

## Wood 2020

Bernard Wood, *Birth of Homo erectus.* Evolutionary Anthropology **29** (2020), 293–298.

Eugène Dubois was the pioneer of human origins research in South-East Asia, specifically on two of the islands, Sumatra and Java, now included in Indonesia. Dubois was a polymath, whose research interests embraced encephalization and hydrology as well as paleoanthropology. His interpretations of the hominin fossil evidence he collected, which he eventually assigned to Pithecanthropus erectus, changed over the years, and he evidently felt defensive about those interpretations, but in his 1894 paper he presents cogent reasons for his decision. The taxon he introduced is still recognized, and while it is no longer seen as "the" link between fossil apes and modern humans, it is currently one of the longest surviving hominin taxa.

## Bibel

Drummond 2020

John Drummond, *A Tale of Two Stories.* Bible History Daily **2020**, Dec. 23.

   To try and answer the question of why the birth narratives found in the Gospels are different, one has to consider the intentions of the authors and the stories they were telling.

   Since the stories don't seem to contradict each other, it isn't hard to combine the narratives of Matthew and Luke to form a bigger picture. However, when we do this, we are doing a disservice to the stories themselves and end up with something the original authors didn't intend.

## Isotope

Tung 2020

Tiffiny A. Tung, Tom D. Dillehay, Robert S. Feranec & Larisa R. G. DeSantis, *Early specialized maritime and maize economies on the north coast of Peru.* PNAS **117** (2020), 32308–32319.

   pnas117-32308-Supplement.pdf

   We assess diet and economies of middle Holocene (≈7,500 to 4,000 calibrated [cal] B.P.) humans at coexisting mound sites (Huaca Prieta and Paredones) in north coastal Peru and document regular consumption of maize by ≈6,500 to 6,000 cal B.P. and its earliest use as a staple food in this area of the Andes between 5,000 and 4,500 cal B.P. Stable isotope data from enamel carbonates and dentin collagen (childhood diet) and dental microwear texture analysis (adult diet) demonstrate dietary and economic specialization. Previous studies revealed maize and mixed-food refuse at both sites, but this study documents actual food consumption, showing that these communities situated a few hundred meters apart had significantly distinct diets in childhood and adulthood. Huaca Prieta focused on marine resources, although there are some contributions from terrestrial meat. Paredones individuals primarily consumed maize during childhood (up to 70 % of the juvenile diet), as shown by d13C values, apatite-collagen spacing, and discriminant analysis of d13Ccoll, d13Ccarb, and d15N values. Maize was likely used as a weaning food (e.g., gruel and/or chicha—a maize beverage), hinting at the significant role of breastfeeding mothers, weanling infants, and children in the development of maize as a staple crop. Additionally, dental microwear data show Paredones adult diets are high in abrasives, potentially from maize processing. The distinct foodways at these neighboring sites result from and also reflect their social and political distinctions. These differences in food production, distribution, and consumption generated opportunities for exchange, an interaction that bound them together in mutual benefit.

   Keywords: stable isotopes | Andes | diet | dental microwear | maize

   Significance: The manner in which early human populations in the Americas organized their subsistence strategies and exchange have profound implications on their socioeconomic organization. Analysis of two coexisting Preceramic communities in coastal Peru (≈7,500 to 4,000 calibrated [cal] B.P.) shows that despite their proximity, they ate distinct foods. Huaca Prieta focused on marine resources, Paredones on maize and other crops. They exchanged food items, indicating early forms of cooperation among specialized Preceramic groups. Paredones shows regular maize consumption by 6,500 to 6,000 cal B.P. and maize as a staple by 5,000 to 4,500 cal B.P., particularly as a weaning food. Research on ancient political

economies should incorporate isotopic and dental microwear texture data to reveal actual food consumption of the people.

## Klima

### Shtienberg 2020

Gilad Shtienberg et al., *A Neolithic mega-tsunami event in the eastern Mediterranean*, *Prehistoric settlement vulnerability along the Carmel coast, Israel.* PLoS ONE **15** (2020), e243619. DOI:10.1371/journal.pone.0243619.

Tsunami events in antiquity had a profound influence on coastal societies. Six thousand years of historical records and geological data show that tsunamis are a common phenomenon affecting the eastern Mediterranean coastline. However, the possible impact of older tsunamis on prehistoric societies has not been investigated. Here we report, based on optically stimulated luminescence chronology, the earliest documented Holocene tsunami event, between 9.91 to 9.29 ka (kilo-annum), from the eastern Mediterranean at Dor, Israel. Tsunami debris from the early Neolithic is composed of marine sand embedded within fresh-brackish wetland deposits. Global and local sea-level curves for the period, 9.91–9.29 ka, as well as surface elevation reconstructions, show that the tsunami had a run-up of at least ≈16 m and traveled between 3.5 to 1.5 km inland from the palaeo-coastline. Submerged slump scars on the continental slope, 16 km west of Dor, point to the nearby "Dorcomplex" as a likely cause. The near absence of Pre-Pottery Neolithic A-B archaeological sites (11.70–9.80 cal. ka) suggest these sites were removed by the tsunami, whereas younger, late Pre-Pottery Neolithic B-C (9.25–8.35 cal. ka) and later Pottery-Neolithic sites (8.25–7.80 cal. ka) indicate resettlement following the event. The large run-up of this event Highlights the disruptive impact of tsunamis on past societies along the Levantine coast.

Gilad Shtienberg, Assaf Yasur-Landau, Richard D. Norris, Michael Lazar, Tammy M. Rittenour, Anthony Tamberino, Omri Gadol, Katrina Cantu, Ehud Arkin- Shalev, Steven N. Ward & Thomas E. Levy

## Kultur

### Wiessner 2020

Polly Wiessner, *The role of third parties in norm enforcement in customary courts among the Enga of Papua New Guinea.* PNAS **117** (2020), 32320–32328.

pnas117-32320-Supplement.pdf

Cultural norms are key to cooperation in human societies. How they are regulated, maintained, and adapted to the change remains a matter of debate. Humans have dispositions for both retributive and restorative justice; recent focus has been on third-party punishment, punitive sanctions by those not directly harmed, as key for norm enforcement. However, punishment does not engage the essential proficiencies and emotions critical to cooperation in smallscale societies with high dependence on collective action, sharing, and exchange. Third-party participation in norm enforcement is examined with data from a 10-y study among the Enga of Papua New Guinea. The Enga have a plural justice system with formal courts practicing retributive justice and customary courts applying restorative measures. Most cases are brought to customary courts. Drawing on observations from 333 village customary court cases concerning assault, marriage, land, and property

violations, third-party engagement outside of and during customary court hearings is analyzed. Results show that all sides are heard, restoration is prioritized, and third-party punishment is rare; rather, third parties help with compensation to reintegrate wrongdoers and resolve conflicts. Repeated offenders and free riders receive ever less community support. Third parties contribute substantially both during and outside of customary court sessions to help kin, pursue economic agendas, or gain reputation. They also act generously to build a strong community. Emphasis is on amends to the victim for fairness, not punishment of the offender. Broad third-party participation is maintained throughout times of rapid change to adapt while supporting essential structures of society.

Significance: Cultural norms are key to cooperation but are challenging to uphold. Humans have deep-seated predispositions for regulating norms through both retributive and restorative means. The Enga of Papua New Guinea, a small-scale horticultural society, navigate the national judicial system of legal plurality—formal Western-style courts with retributive justice and customary courts with restorative justice. An analysis of 333 customary court cases shows that Enga choose restorative options to compensate the victim for losses, reintegrate the wrongdoer, and restore cooperation because cooperation and collective action are essential to survival in small-scale societies. Today, in many industrialized societies, efforts are made to reintegrate elements of such age-old restorative systems by respectful listening to both sides, apologies, amends, and reconciliation.

## Methoden

### Marcus 2020

Adam Marcus, *The grad student who found a fatal error that may affect lots of papers.* Retraction Watch **2020**, Dec. 11. <http://retractionwatch.com/2020/12/11/the-grad-student-who-found-a-fatal-error-that-may-affect-lots-of-papers/> (2020-12-26).

Whenever my PhDs and I think of a pipeline for a tricky analysis question I encourage them to first try it on simulated data (both null and effect). We started doing this before I learned about my mistake in this paper, but this very much encourages me to carry on with this practice.

### Marcus 2020

Adam Marcus, *'I thought I had messed up my experiment', How a grad student discovered an error that might affect hundreds of papers.* Retraction Watch **2020**, Dec. 23. <http://retractionwatch.com/2020/12/23/i-thought-i-had-messed-up-my-experiment-how-a-grad-student-discovered-an-error-that-migh> (2020-12-26).

I then contacted Ben. He took me very seriously immediately and some of his reanalyses corroborated mine. He also engaged in his own series of simulations and identified further factors modulating the artifact's appearance. Scientifically speaking, this was excellent because we essentially cross-validated and complemented one another.

Demography is central to biological, behavioral, and cultural evolution. Knowledge of the demography of prehistoric populations of both Homo sapiens and earlier members of the genus Homo is, therefore, key to the study of human evolution. Unfortunately, demographic processes (fertility, mortality, migration) leave little mark on the archeological and paleoanthropological records. One common solution to this issue is the application of demographic data from extant hunter-gatherers to prehistory. With the aim of strengthening this line of enquiry, here we outline some pitfalls and their interpretative implications. In doing so, we provide recommendations about the application of hunter-gatherer data to the study of demographic trends throughout human evolution. We use published demographic data from extant hunter-gatherers to show that it is the diversity seen among extant hunter-gatherers—both intra- and inter-population variability—that is most relevant and useful for understanding past hunter-gatherer demography.