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References

Aktuell

Broockman 2015

David Broockman, Joshua Kalla & Peter Aronow, *Irregularities in LaCour (2014)*. unknown **2015**, May 19. <http://stanford.edu/~dbroock/broockman_kalla_aronow_lg_irregularities.pdf>.

We report a number of irregularities in the replication dataset posted for LaCour and Green (Science, "When contact changes minds: An experiment on transmission of support for gay equality," 2014) that jointly suggest the dataset (LaCour 2014) was not collected as described. These irregularities include baseline outcome data that is statistically indistinguishable from a national survey and over-time changes that are unusually small and indistinguishable from perfectly normally distributed noise. Other elements of the dataset are inconsistent with patterns typical in randomized experiments and survey responses and/or inconsistent with the claimed design of the study. A straightforward procedure may generate these anomalies nearly exactly: for both studies reported in the paper, a random sample of the 2012 Cooperative Campaign Analysis Project (CCAP) form the baseline data and normally distributed noise are added to simulate follow-up waves.

Deroy 2015

Ophelia Deroy, *Eat insects for fun, not to help the environment*. nature **521** (2015), 395.

Insects are an excellent source of sustainable protein, but people will only be persuaded to eat them if they seem appealing, says Ophelia Deroy. Most of the insects eaten in the world are cooked as part of interesting preparations that make them a genuine competitor to other foods, and often a more attractive option. These insects are eaten by choice, not necessity. This obvious fact is missed by most of the current research and policies.

Halevy 2015

Nir Halevy & Eliran Halali, *Selfish third parties act as peacemakers by transforming conflicts and promoting cooperation*. PNAS **112** (2015), 6937–6942.

The tremendous costs of conflict have made humans resourceful not only at warfare but also at peacemaking. Although third parties have acted as peacemakers since the dawn of history, little is known about voluntary, informal third-party intervention in conflict. Here we introduce the Peacemaker Game, a novel experimental paradigm, to model and study the interdependence between disputants and third parties in conflict. In the game, two disputants choose whether to cooperate or compete and a third party chooses whether or not to intervene in the conflict. Intervention introduces side payments that transform the game disputants are playing; it also introduces risk for the third party by making it vulnerable to disputants' choices. Six experiments revealed three robust effects: (i) The mere possibility of third-party intervention significantly increases cooperation in interpersonal and intergroup conflicts; (ii) reducing the risk to third parties dramatically increases intervention rates, to everyone's benefit; and (iii) disputants'

cooperation rates are consistently higher than third parties' intervention rates. These findings explain why, how, and when self-interested third parties facilitate peaceful conflict resolution.

Keywords: conflict | dispute resolution | war and peace | incentives | social dilemma

Significance: Six experiments show that the mere possibility of third-party intervention increases cooperation in interpersonal and intergroup interactions, that third parties often fail to increase collective gains by withholding intervention, and that reducing the risk associated with intervention significantly increases peacemaking by self-interested third parties. These findings highlight the interdependence between disputants and third parties, thereby complementing existing models that solely focus on unidirectional influence of third parties on disputants. These findings underscore the role self-interest plays in shaping third parties' intervention decisions and demonstrate that selfish third parties can promote peaceful conflict resolution by literally changing the game disputants are playing. Overall, we explain why, how, and when self-interested third parties intervene in others' conflicts, to everyone's benefit.

Keverne 2015

Eric B. Keverne, Donald W. Pfaff & Inna Tabansky, *Epigenetic changes in the developing brain, Effects on behavior*. PNAS **112** (2015), 6789–6795.

This Sackler Colloquium encompasses a broad range of topics for the following reason. Our knowledge of the chemistry of epigenetic modifications is expanding at a rapid rate, but most of the primary discoveries in this field are made using nonneural tissue. So, neuroscientists want to learn about this chemistry but may not have direct exposure to the material. In a complementary fashion, molecular geneticists and protein chemists who experiment on DNA methylation, histone modifications, and noncoding RNAs realize that some of the most exciting applications of their discoveries are in the CNS, but for such scientists behavioral assays, for example, are distant from their expertise. The purpose of this Sackler Colloquium, therefore, was to bring together experts in the two fields—epigenetic chemistry and behavioral neuroscience —in the spirit of mutual education.

Kirk 2015

David S. Kirk, *A natural experiment of the consequences of concentrating former prisoners in the same neighborhoods*. PNAS **112** (2015), 6943–6948.

More than 600,000 prisoners are released from incarceration each year in the United States, and most end up residing in metropolitan areas, clustered within a select few neighborhoods. Likely consequences of this concentration of returning prisoners include higher rates of subsequent crime and recidivism. In fact, one-half of released prisoners return to prison within only 3 y of release. The routine exposure to criminogenic influences and criminal opportunities portends a bleak future for individuals who reside in neighborhoods with numerous other ex-prisoners. Through a natural experiment focused on post-Hurricane Katrina Louisiana, I examine a counterfactual scenario: If instead of concentrating exprisoners in geographic space, what would happen to recidivism rates if ex-prisoners were dispersed across space? Findings reveal that a decrease in the concentration of parolees in a neighborhood leads to a significant decrease in the reincarceration rate of former prisoners.

Keywords: prisoners | recidivism | neighborhood effects | natural experiment | Hurricane Katrina

Significance: There are ≈5 million formerly imprisoned individuals residing in US neighborhoods, yet this population is highly concentrated in a relatively small number of neighborhoods, typically within metropolitan areas. I find that concentrating former prisoners in the same neighborhoods leads to significantly higher recidivism rates than if ex-prisoners were more dispersed across neighborhoods. The reasons why exprisoners concentrate in a select few urban neighborhoods include personal factors such as social ties to the neighborhood, but they also include institutional and structural barriers such as parole policies and housing market dynamics. Policy solutions that disperse the geographic concentration of former prisoners, while leading to some geographic displacement of recidivism, would likely yield a net reduction in recidivism in aggregate.

LaCour 2014

Michael J. LaCour & Donald P. Green, *When contact changes minds, An experiment on transmission of support for gay equality.* science **346** (2014), 1366–1369.

s346-1366-Supplement.pdf

Can a single conversation change minds on divisive social issues, such as same-sex marriage? A randomized placebo-controlled trial assessed whether gay (n = 22) or straight (n = 19) messengers were effective at encouraging voters (n = 972) to support same-sex marriage and whether attitude change persisted and spread to others in voters' social networks. The results, measured by an unrelated panel survey, show that both gay and straight canvassers produced large effects initially, but only gay canvassers' effects persisted in 3-week, 6-week, and 9-month follow-ups. We also find strong evidence of within-household transmission of opinion change, but only in the wake of conversations with gay canvassers. Contact with gay canvassers further caused substantial change in the ratings of gay men and lesbians more generally. These large, persistent, and contagious effects were confirmed by a follow-up experiment. Contact with minorities coupled with discussion of issues pertinent to them is capable of producing a cascade of opinion change.

LaCour 2015

Michael J. LaCour, *Response to Irregularities in LaCour and Green (2014).* unknown **2015**, May 29. <http://www.dropbox.com/s/zqfcmlkzjuqe807/LaCour_Response_05-29-2015.pdf>.

In a critique of LaCour and Green (2014), David Broockman, Joshua Kalla, and Peter Aronow, posted a paper online. In this essay, I introduce evidence uncovering discrepancies between the timeline of events presented in Broockman et al. (2015) and the actual timeline of events and disclosure. I argue that Broockman et al.'s failure to replicate LaCour and Green (2014) is likely the result of a failure to follow the respondent-driven sampling procedure in LaCour and Green (2014). However, the failure of Broockman et al. to describe the sampling procedure utilized in their "replication efforts" makes it impossible to evaluate the study's scientific merit and thus has no bearing on LaCour and Green (2014). I show that the results presented in LaCour and Green (2014) withstand criticism of Broockman et al. Most problematic for the claim that the data in LaCour and Green (2014) are "statistically indistinguishable" from CCAP data is the fact that Broockman et al. selected the incorrect variable from CCAP (2012), they then further manipulate this variable to make the distribution look more like that in LaCour and Green (2014). When the correct variable is used, the distributions between the CCAP thermometer and the LaCour and Green (2014) thermometer are statistically distinguishable. Selecting the incorrect variable may have been an oversight, but further manipulating that variable to make the distribution look

more like LaCour and Green (2014) is a curious and possibly intentional "error." Broockman et al. (2015) also notably omit the primary analyses reported in the main text of LaCour and Green (2014), which challenges their hypothesis – the within person correlation between the baseline wave and the 9-month follow-up. Finally, a replication experiment, that does not rely on surveys, conducted independently of the parties involved, reproduces the main finding reported in LaCour and Green (2014).

McNutt 2015

Marcia McNutt, *Give women an even chance*. science **348** (2015), 611.

More than 10 % of the applicants had a least one supporting letter containing inappropriate material for the decision at hand. All of the students so affected, unfortunately, were women, and those writing the problematic letters were nearly equally men and women.

As examples of the sort of problems, one letter described how the candidate was so good to her elderly mother, yet still enjoyed life, spending time in nature with her husband and her animal friends. Another letter reflected amazement that the candidate managed to balance so efficiently being a student, a scientist, and a mother. Very different words were used to describe the male candidates (and many of the females as well): "brilliant," "creative," "hard-working," "insightful," and "showing leadership."

Mina 2015

Michael J. Mina, C. Jessica E. Metcalf, Rik L. de Swart, A. D. M. E. Osterhaus & Bryan T. Grenfell, *Long-term measles-induced immunomodulation increases overall childhood infectious disease mortality*. science **348** (2015), 694–699.

s348-0694-Supplement1.mp4, s348-0694-Supplement2.mov, s348-0694-Supplement3.mov, s348-0694-Supplement4.pdf

Immunosuppression after measles is known to predispose people to opportunistic infections for a period of several weeks to months. Using population-level data, we show that measles has a more prolonged effect on host resistance, extending over 2 to 3 years. We find that nonmeasles infectious disease mortality in high-income countries is tightly coupled to measles incidence at this lag, in both the pre- and post-vaccine eras. We conclude that long-term immunologic sequelae of measles drive interannual fluctuations in nonmeasles deaths. This is consistent with recent experimental work that attributes the immunosuppressive effects of measles to depletion of B and T lymphocytes. Our data provide an explanation for the long-term benefits of measles vaccination in preventing all-cause infectious disease. By preventing measles-associated immune memory loss, vaccination protects polymicrobial herd immunity.

Ramirez 2015

Ainissa Ramirez, *The making of a science evangelist*. science **348** (2015), 726.

I was smitten with science communication. My students were smitten with science. I learned that I loved teaching science and that I have a talent for reaching apprehensive students.

The denial of tenure thrusts you into a caste of the unclean. . . .

It felt good. Things opened up. TED invited me to give a talk. Dignitaries invited me to meetings. Random House published my book. I'm now happier and healthier. I'm following a path worn by Isaac Asimov, Carl Sagan, Neil deGrasse Tyson, and Bill Nye: lecturing, writing, and publicizing science.

Singal 2015

Jesse Singal, *An Interview With Donald Green, the Co-Author of the Faked Gay-Marriage Study*. New York Magazine **2015**, May 21.

Naturally, I'm quite embarrassed by the whole situation, embarrassed to have any role in the situation. It's not my idea of fun or recreation to answer journalists' questions hours after hours after hours, day after day. Naturally, I resent being put in this awkward position for no reason.

Singal 2015

Jesse Singal, *The Case of the Amazing Gay-Marriage Data, How a Graduate Student Reluctantly Uncovered a Huge Scientific Fraud*. New York Magazine **2015**, May 29. <http://nymag.com/scienceofus/2015/05/how-a-grad-studentuncovered-a-huge-fraud.html>.

The results LaCour showed Broockman were, in fact, very cool, and like everyone else who had come across them, Broockman instantly knew they would be a hit. ...

LaCour told Broockman that he planned on getting a big name on the paper in progress: Donald Green, a highly respected political-science professor at Columbia who was also Broockman's undergraduate adviser at Yale.

Tack 2015

Jesse Tack, Andrew Barkley & Lawton Lanier Nalley, *Effect of warming temperatures on US wheat yields*. PNAS **112** (2015), 6931–6936.

Climate change is expected to increase future temperatures, potentially resulting in reduced crop production in many key production regions. Research quantifying the complex relationship between weather variables and wheat yields is rapidly growing, and recent advances have used a variety of model specifications that differ in how temperature data are included in the statistical yield equation. A unique data set that combines Kansas wheat variety field trial outcomes for 1985–2013 with location-specific weather data is used to analyze the effect of weather on wheat yield using regression analysis. Our results indicate that the effect of temperature exposure varies across the September-May growing season. The largest drivers of yield loss are freezing temperatures in the Fall and extreme heat events in the Spring. We also find that the overall effect of warming on yields is negative, even after accounting for the benefits of reduced exposure to freezing temperatures. Our analysis indicates that there exists a tradeoff between average (mean) yield and ability to resist extreme heat across varieties. More-recently released varieties are less able to resist heat than older lines. Our results also indicate that warming effects would be partially offset by increased rainfall in the Spring. Finally, we find that the method used to construct measures of temperature exposure matters for both the predictive performance of the regression model and the forecasted warming impacts on yields.

Keywords: agriculture | climate change | global warming | wheat | yield

Altpaläolithikum

Blasco 2015

Ruth Blasco, Jordi Rosell, Pablo Sa nudo, Avi Gopher & Ran Barkai, *What happens around a fire, Faunal processing sequences and spatial distribution at Qesem Cave (300 ka), Israel*. Quaternary International (2015), preprint, 1–20. DOI:10.1016/j.quaint.2015.04.031.

The technological innovation involving the controlled use of fire represents a decisive change in human subsistence. Hearths and the spatial distribution patterns associated with them constitute a valuable element in deepening our knowledge on human behaviour and its evolution. Studies focused on hearths and on the use of fire in general are diverse and carried out through different perspectives. Thus, hearths are studied for their meaning in terms of diet, caloric and light capacity and spatial organisation as well as for their role as communication and socialization focal points. The site of Qesem Cave (Israel) shows evidence of the controlled use of fire as early as 400 ka, judging by the burned bones from the lowest units of the stratigraphic sequence. A particular superimposed central hearth that was repeatedly used as a focus for human activities ca. 300 ka is the topic of this study. This succession of hearths at the same location in the cave yields dense faunal and lithic remains as well as evidence for spatial differentiation between areas. Here, we present faunal taphonomical data from this specific archaeological context, which includes not only the hearth area (approximately 4 m2) but also the surrounding areas (approximately 11 m2). The most common prey species is the Mesopotamian fallow deer (Dama cf. mesopotamica), which displays a wide age range and a biased anatomical profile including mainly marrow-rich bones such as long-limb bones. These characteristics, especially those regarding the relative abundance of infantile and young fallow deer, lead us to propose that social hunting techniques were practised following a seasonal regime. This paper provides data on human subsistence behaviour during the formation of the hearth and the archaeological unit around it, comparing the two from a taphonomical perspective. Elements such as size (length) of bone fragments and intensity of burning are spatially plotted to show differential space division. All these data are considered in the reconstruction of subsistence strategies and hominin behaviour in the Acheulo-Yabrudian Cultural Complex in the Levant.

Keywords: Middle Pleistocene | Acheulo-Yabrudian Cultural Complex (AYCC) | Spatial distribution | Hearth | Qesem Cave | Levant

Anthropologie

Haile-Selassie 2015

Yohannes Haile-Selassie et al., *New species from Ethiopia further expands Middle Pliocene hominin diversity*. nature **521** (2015), 483–488.

n521-0483-Supplement.pdf

Yohannes Haile-Selassie, Luis Gibert, Stephanie M. Melillo, Timothy M. Ryan, Mulugeta Alene, Alan Deino,Naomi E. Levin, Gary Scott & Beverly Z. Saylor

Middle Pliocene hominin species diversity has been a subject of debate over the past two decades, particularly after the naming of Australopithecus bahrelghazali and Kenyanthropus platyops in addition to the well-known species Australopithecus afarensis. Further analyses continue to support the proposal that several hominin species co-existed during this time period. Here we recognize a new hominin species (Australopithecus deyiremeda sp. nov.) from 3.3–3.5-million-year-old deposits in the Woranso–Mille study area, central Afar, Ethiopia. The new species from Woranso–Mille shows that there were at least two contemporaneous hominin species living in the Afar region of Ethiopia between 3.3 and 3.5million years ago, and further confirms early hominin taxonomic diversity in eastern Africa during the Middle Pliocene epoch. The morphology of Au. deyiremeda also reinforces concerns related to dentognathic (that is, jaws and teeth) homoplasy in Plio–Pleistocene hominins, and shows that some dentognathic features tradition-

ally associated with Paranthropus and Homo appeared in the fossil record earlier than previously thought.

Spoor 2015

Fred Spoor, *The middle Pliocene gets crowded*. nature **521** (2015), 432–433.

New hominin fossils discovered in Ethiopia, dated to between 3.5 million and 3.3 million years ago, suggest that species diversity may have been as high during early human evolution as in later periods.

Finding such taxonomic diversity raises the question of how multiple species could have coexisted over a long period in a stable ecosystem, particularly when they live in close geographic proximity, as seems to be the case with A. deyiremeda and A. afarensis. Niche partitioning, involving diverse dietary preferences, foraging strategies, habitat selection and population movements, will probably be the key factor. However, establishing a concrete link between such characteristics and the morphological differences that distinguish species is often difficult, not least because the morphology may be affected by random genetic drift as much as by selection.

Any discussion of niche partitioning and foraging behaviour among middle Pliocene hominins should consider the discovery of 3.4-Myr-old cut-marked bones at Dikika in Ethiopia, and of 3.3-Myr-old stone tools at Lomekwi.

Warneken 2015

Felix Warneken & Alexandra G. Rosati, *Cognitive capacities for cooking in chimpanzees*. Proc. Royal Society B **282** (2015), 20150229.

The transition to a cooked diet represents an important shift in human ecology and evolution.Cooking requires a set of sophisticated cognitive abilities, including causal reasoning, self-control and anticipatory planning. Do humans uniquely possess the cognitive capacities needed to cook food? We address whetherone of humans' closest relatives, chimpanzees (Pan troglodytes), possess the domain-general cognitive skills needed to cook. Across nine studies, we show that chimpanzees: (i) prefer cooked foods; (ii) comprehend the transformation of raw food that occurs when cooking, and generalize this causal understanding to new contexts; (iii) will pay temporal costs to acquire cooked foods; (iv) are willing to actively give up possession of raw foods in order to transform them; and (v) can transport raw food as well as save their raw food in anticipation of future opportunities to cook. Together, our results indicate that several of the fundamental psychological abilities necessary to engage in cooking may have been shared with the last common ancestor of apes and humans, predating the control of fire.

Keywords: primate cognition | future-oriented cognition | causal reasoning | cooking | human evolution

Bibel

Faust 2002

Avraham Faust, *Accessibility, Defence and Town Planning in Iron Age Israel*. Tel Aviv: Archaeology **29** (2002), 297–317.

Previous studies have correctly identified some basic elements of Iron Age town planning: the city wall, an outer belt of houses built against the wall (in some cases) and the ring road that accompanied it, as well as the occasional existence of inner blocks of buildings, and the typology of the various settlements according to several variables.

It seems, however, that while these basic conclusions still seem generally valid, there are other elements of planning that should be considered:

First, free access to the city wall should be considered a basic element in the city planning of this period. When an outer belt of houses existed next to the city wall (as observed by Shiloh), free access was guaranteed through the construction of small alleys or corridors that connected the ring road to the casemate wall, cutting through the outer belt of houses. These corridors enabled easy and quick access to the city wall from various points in the city, and hence helped in the defence of the city in times of war, and contributed to its safeguard in times of peace. Moreover, these corridors (or free spaces, when they existed) enabled the city's authorities to use some (and more rarely, even all) ofthe casemate rooms for storage or for other purposes.

In many cities, however, an outer belt of houses did not exist along the city wall. These sites had a street that ran adjacent to the wall, and the houses were built only on the inner side of the street (it should be noted that some sites used both methods for different parts of the city, e.g., Shiqmona). Whenever this planning was implemented, access to the city wall was easily secured, as free spaces and even streets were left near the city wall, enabling easy access to it in times of war as well as in times of peace. Based on the data presented above, it seems that this type of planning, in which a street accompanied the city wall, was even more frequent than the type of planning observed by Shiloh.

An outer belt of houses seems to be more typical of Judah, while a street adjacent to the wall is more typical of Israel. Likewise, the former is usually associated with casemate walls, while the latter is associated with 'massive' walls (though there are exceptions to both 'generalizations'). It is possible that the reason for choosing between the two types of planning was a result of spatial considerations; when space was abundant there were streets and spaces along the city wall. When space was scarce, however, the belt of houses was built abutting the city wall in order to save space.

Faust 2015

Avraham Faust, *Chronological and Spatial Changes in the Rural Settlement Sector of Ancient Israel During the Iron Age, An Overview*. Revue Biblique **122** (2015), 247–267.

The rural settlement sector of Iron Age Israel did not attract much scholarly attention, and although various discussions were published over the years, those tended to be specific and did not present overall developments and trends. It is therefore the aim of this article to present, for the first time, an overview on this neglected settlement sector during the Iron Age. The article will review the evidence, mainly on the basis of excavations, and will reconstruct the developments and changes this sector experienced at the time. The data will enable us to discuss questions related to social structure on the one hand, and to assess the influence of the various historical events and processes on rural settlement patterns on the other hand. These processes include the Iron Age I settlement phenomenon, the emergence of various polities in the Iron IIA, as well as the incorporation of the region within the Assyrian, and later Babylonian, empires.

Grundlagen

Bieliński 2014

Piotr Bieliński et al. (Hrsg.), *Proceedings of the 8th*

ICAANE, 30 April – 4 May 2012, University of Warsaw, Vol. 2: Excavation and Progress Reports, Posters. (Wiesbaden 2014).

Piotr Bieliński, Michał Gawlikowski, Rafał Koliński, Dorota Ławecka, Arkadiusz Słtysiak & Zuzanna Wygnańska

The 8th International Congress on the Archaeology of the Ancient Near East (VIII ICAANE) was held in Warsaw in spring 2012, jointly organized by the University of Warsaw, the K. Michalowski Foundation and the Institute of Prehistory of the Adam Mickiewicz University in Poznan.

The three-volume Proceedings contain the latest information and analyses reported at the VIII ICAANE. The first volume contains papers presented during plenary sessions as well as two of the main themes: Township and Villages and High and Low – The Minor Arts for the Elite and for the Populace. The second volume includes the most extensive session dedicated to the results of field research, Excavations and Progress Reports, covering the entire Near East, the Gulf countries and the Caucasus. The volume is completed by contributions presented during the poster session. The third volume is a collection of four themes: Archaeology of Fire, Bioarchaeology – an innovation of the 8th ICAANE, introduced to bring together scholars working within interdisciplinary projects on various aspects of the ecology of the ancient populations of the Near East –, Conservation, Preservation and Site Management and the Islamic Session. Anyone with an interest in the ancient Near East will find much to enjoy and appreciate in these three impressive volumes.

Islam

Birnstiel 2015

Daniel Birnstiel, *Illibration of Incarnation? A critical assessment of Christoph Luxenberg's alleged Christmas liturgy in surah 97.* In: Kurnaz et al. (Hrsg.), *Horizonte der Koranexegese und Koranwissenschaften (working title).* (Forthcoming 2015), 1–56.

Given the evidence presented over the preceding pages, it becomes incontestable that Luxenberg's attempted reading of surah 97 must be regarded as unsuccessful and falsified. Every single emendation suggested by him has revealed itself to be based upon mistaken assumptions and/or erroneous recourse to the Syriac lexical works. The meanings he attempts to read into the surah are nowhere attested in any well-known authentic classical Syriac work on Christmas, while some of the concepts underlying his re-interpretation are actually in stark contradiction with the known stance of Syriac writers regarding the star of Bethlehem or destiny and horoscopes. His proposal to regard surah 97 as a misunderstood, original introit of a pre-Islamic Christian Arab Christmas liturgy (2003a: 17; 2004b: 134) must consequently be dismissed.

Luxenberg 2003

Christoph Luxenberg, *Weihnachten im Koran.* imprimatur **2003**, i, 3.

Sure 97 kann als Einleitung zu einer Weihnachtsliturgie der christlichen Araber gedient haben. Die darin an einen früheren christlich-syrischen bzw. christlich-arabischen Brauch anknüpfende Tradition der Muslime ist ein bedeutungsvoller Ansatzpunkt für das Verständnis des Ursprungs des Islam. Sprach- und religionshistorisch richtig verstanden, macht diese Sure die gemeinsamen Wurzeln und die ursprüngliche Nähe von Christentum und Islam deutlich.

Klima

Amundson 2015

Ronald Amundson, Asmeret Asefaw Berhe, Jan W. Hopmans, Carolyn Olson, A. Ester Sztein & Donald L. Sparks, *Soil and human security in the 21st century*. science **348** (2015), 647.

Human security has and will continue to rely on Earth's diverse soil resources. Yet we have now exploited the planet's most productive soils. Soil erosion greatly exceeds rates of production in many agricultural regions. Nitrogen produced by fossil fuel and geological reservoirs of other fertilizers are headed toward possible scarcity, increased cost, and/or geopolitical conflict. Climate change is accelerating the microbial release of greenhouse gases from soil organic matter and will likely play a large role in our near-term climate future. In this Review, we highlight challenges facing Earth's soil resources in the coming century. The direct and indirect response of soils to past and future human activities will play a major role in human prosperity and survival.

Gulev 2015

Sergey K. Gulev & Mojib Latif, *The origins of a climate oscillation*. nature **521** (2015), 428–430.

An index of water-circulation strength in the North Atlantic Ocean has been derived from sea-level measurements. This provides fresh evidence of the ocean's leading role in multidecadal climate variability.

Higgins 2015

John A. Higgins et al., *Atmospheric composition 1 million years ago from blue ice in the Allan Hills, Antarctica*. PNAS **112** (2015), 6887–6891.

John A. Higgins, Andrei V. Kurbatov, Nicole E. Spaulding, Ed Brook, Douglas S. Introne, Laura M. Chimiak, Yuzhen Yan, Paul A. Mayewski & Michael L. Bender

Here, we present direct measurements of atmospheric composition and Antarctic climate from the mid-Pleistocene (≈1 Ma) from ice cores drilled in the Allan Hills blue ice area, Antarctica. The 1-Ma ice is dated from the deficit in 40Ar relative to the modern atmosphere and is present as a stratigraphically disturbed 12-m section at the base of a 126-m ice core. The 1-Ma ice appears to represent most of the amplitude of contemporaneous climate cycles and CO2 and CH4 concentrations in the ice range from 221 to 277 ppm and 411 to 569 parts per billion (ppb), respectively. These concentrations, together with measured dD of the ice, are at the warm end of the field for glacial–interglacial cycles of the last 800 ky and span only about one-half of the range. The highest CO2 values in the 1-Ma ice fall within the range of interglacial values of the last 400 ka but are up to 7 ppm higher than any interglacial values between 450 and 800 ka. The lowest CO2 values are 30 ppm higher than during any glacial period between 450 and 800 ka. This study shows that the coupling of Antarctic temperature and atmospheric CO2 extended into the mid-Pleistocene and demonstrates the feasibility of discontinuously extending the current ice core record beyond 800 ka by shallow coring in Antarctic blue ice areas.

Keywords: climate change | glacial cycles | atmospheric CO2 | ice cores | greenhouse gases

McCarthy 2015
Gerard D. McCarthy, Ivan D. Haigh, Joël J.-M. Hirschi, Jeremy P. Grist & David A. Smeed, *Ocean impact on decadal Atlantic climate variability revealed by sea-level observations*. nature **521** (2015), 508–510.

Decadal variability is a notable feature of the Atlantic Ocean and the climate of the regions it influences. Prominently, this is manifested in the Atlantic Multi-decadal Oscillation (AMO) in sea surface temperatures. Positive (negative) phases of the AMO coincide with warmer (colder) North Atlantic sea surface temperatures. The AMO is linked with decadal climate fluctuations, such as Indian and Sahel rainfall1, European summer precipitation2, Atlantic hurricanes3 and variations in global temperatures4. It is widely believed that ocean circulation drives the phase changes of the AMO by controlling ocean heat content5. However, there are no direct observations of ocean circulation of sufficient length to support this, leading to questions about whether the AMO is controlled from another source6. Here we provide observational evidence of the widely hypothesized link between ocean circulation and the AMO. We take a new approach, using sea level along the east coast of the United States to estimate ocean circulation on decadal timescales. We show that ocean circulation responds to the first mode of Atlantic atmospheric forcing, the North Atlantic Oscillation, through circulation changes between the subtropical and subpolar gyres—the intergyre region7. These circulation changes affect the decadal evolution of North Atlantic heat content and, consequently, the phases of the AMO. The Atlantic overturning circulation is declining8 and the AMO is moving to a negative phase. This may offer a brief respite from the persistent rise of global temperatures4, but in the coupled system we describe, there are compensating effects. In this case, the negative AMO is associated with a continued acceleration of sea-level rise along the northeast coast of the United States9,10.

Kultur

Rahmstorf 2014
Lorenz Rahmstorf, *Early Balance Weights in Mesopotamia and Western Syria, Origin and Context*. In: Piotr Bieliński et al. (Hrsg.), *Proceedings of the 8th ICAANE, 30 April – 4 May 2012, University of Warsaw, Vol. 2: Excavation and Progress Reports, Posters*. (Wiesbaden 2014), 427–441.

Early balance weights have been found at several Early Dynastic/Akkadian/Ur III sites in southern Mesopotamia since the late 19th century but not all were identified as such and very few have been published adequately. The existence of weight metrology already in the Chalcolithic period cannot be verified so far. In Syria, a steadily increasing number of weights have come to light in excavations at Early Bronze Age sites in the last decades. In a recent comprehensive and not yet published study, the author has assembled nearly 2000 third-millennium balance weights from 163 sites between the Aegean and western India, and discussed them under chronological, contextual and metrological aspects. In this contribution, some results concerning Mesopotamia and western Syria will be presented.

Tversky 1981
Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*. science **211** (1981), 453–458.

The psychological principles that govern the perception of decision problems and the evaluation of probabilities and outcomes produce predictable shifts of preference when the same problem is framed in different ways. Reversals of preference are demonstrated in choices regarding monetary outcomes, both hypothetical and real, and in questions pertaining to the loss of human lives. The effects of frames on preferences are compared to the effects of perspectives on perceptual appearance. The dependence of preferences on the formulation of decision problems is a significant concern for the theory of rational choice.

Wilson 1979

Richard Wilson, *Analyzing the Daily Risks of Life*. MIT Technology Review **81** (1979), iv, 40–46.

In our most trivial activities we incur risks. These hazards can be quantified and compared, but can they be eliminated from our lives?

Mittelpaläolithikum

Akazawa 2013

Takeru Akazawa, Yoshihiro Nishiaki & Kenichi Aoki (Hrsg.), *Dynamics of Learning in Neanderthals and Modern Humans Volume 1: Cultural Perspectives*, *Proceedings of "Testing Evolutionary Models of Learning" Tokyo, November 18–24, 2012*. Replacement of Neanderthals by Modern Humans (Tokyo 2013).

Bar-Yosef 2013

Ofer Bar-Yosef, *Neanderthals and Modern Humans Across Eurasia*. In: Takeru Akazawa, Yoshihiro Nishiaki & Kenichi Aoki (Hrsg.), *Dynamics of Learning in Neanderthals and Modern Humans Volume 1: Cultural Perspectives*, *Proceedings of "Testing Evolutionary Models of Learning" Tokyo, November 18–24, 2012*. Replacement of Neanderthals by Modern Humans (Tokyo 2013), 7–20.

Neanderthals, a European population was undoubtedly successful in surviving through several glacial periods. Their population, originally spread across Europe, composed of small communities but succeeded to maintain their relationships and their mating systems and thus secured their biological survival. Published samples of aDNA and teeth indicate that they formed a particular population, although morphological deviations from the western European relics are found at the edges of their geographic distribution. The expansions of Neanderthals into western Asia and reaching the Altai Mountains refl ect their successful adaptations to variable environments. Their demise was caused, among others, by the expansion of groups of modern humans of African origins. The cultural traits of the new invading and colonizing people included high degree of mobility, signs of group identity, new cloths, use of ornaments, new hunting tools, and means of communication. The interactions of modern humans with the Neanderthals, discussed in the paper, provide a foundation for further research along economic and biological considerations that may provide a more sound explanation for the disappearance of a past successful meta-population.

Keywords: Eurasia | Expansions | Modern humans | Neanderthals