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References

Afrika

Hildebrand 2007

Elisabeth Anne Hildebrand, *A tale of two tuber crops, How attributes of enset and yams may have shaped prehistoric human-plant interactions in Southwest Ethiopia*. In: Tim Denham, José Iriarte & Luc Vrydaghs (Hrsg.), *Rethinking Agriculture, Archaeological and Ethnoarchaeological Perspective*. One world archaeology 51 (Abingdon 2016), 273–298.

Although enset and yams both provide large, starchy underground food sources, grow in the same area and are used by the same people, they are distinct in their morphology, life cycle, environmental requirements and utility. These differences structure human-plant interactions in fundamental ways today and would have done so prehistorically. Differences in growth and in time and place of availability would have given enset and yams highly distinct roles in a prehistoric hunting and gathering seasonal round. Because enset and yams differ significantly in their visibility and in their responses to human harvest, sustainable use by hunter-gatherers would have required separate strategies for harvesting and maintenance of wild plant populations.

Aktuell

Bai 2020

Xuechunzi Bai, Miguel R. Ramos & Susan T. Fiske, *As diversity increases, people paradoxically perceive social groups as more similar*. PNAS **117** (2020), 12741–12749.

pnas117-12741-Supplement.pdf

With globalization and immigration, societal contexts differ in sheer variety of resident social groups. Social diversity challenges individuals to think in new ways about new kinds of people and where their groups all stand, relative to each other. However, psychological science does not yet specify how human minds represent social diversity, in homogeneous or heterogenous contexts. Mental maps of the array of society's groups should differ when individuals inhabit more and less diverse ecologies. Nonetheless, predictions disagree on how they should differ. Confirmation bias suggests more diversity means more stereotype dispersion: With increased exposure, perceivers' mental maps might differentiate more among groups, so their stereotypes would spread out (disperse). In contrast, individuation suggests more diversity means less stereotype dispersion, as perceivers experience within-group variety and betweengroup overlap. Worldwide, nationwide, individual, and longitudinal datasets (n = 12,011) revealed a diversity paradox: More diversity consistently meant less stereotype dispersion. Both contextual and perceived ethnic diversity correlate with decreased stereotype dispersion. Countries and US stateswith higher levels of ethnic diversity (e.g., South Africa and Hawaii, versus South Korea and Vermont), online individuals who perceive more ethnic diversity, and students who moved to more ethnically diverse colleges mentally represent ethnic groups as more similar to each other, on warmth and competence stereotypes.

Homogeneity shows more-differentiated stereotypes; ironically, thosewith the least exposure have the most-distinct stereotypes. Diversity means less-differentiated stereotypes, as in the melting pot metaphor. Diversity and reduced dispersion also correlate positively with subjective wellbeing.

Keywords: intergroup relations | social diversity | perceived similarity | stereotypes | cognitive process

Significance: Globalization and immigration expose people to increased diversity, challenging them to think in new ways about new people. Yet, scientists know little about how changing demography affects human mental representations of social groups, relative to each other. How do mental maps of stereotypes differ, with exposure to diversity? At national, state, and individual levels, more diversity is associated with less stereotype dispersion. Paradoxically, people produce more-differentiated stereotypes in ethnically homogeneous contexts but more similar, overlapping stereotypes in diverse contexts. Increased diversity and decreased stereotype dispersion correlate with subjective wellbeing. Perhaps human minds adapt to social diversity, by changing their symbolic maps of the array of social groups, perceiving overlaps, and preparing for positive future intergroup relations. People can adjust to diversity.

Baumann 2020

Christiane Baumann, Henrik Singmann, Samuel J. Gershmanc & Bettina von Helversen, *A linear threshold model for optimal stopping behavior*. PNAS **117** (2020), 12750–12755.

pnas117-12750-Supplement.pdf

In many real-life decisions, options are distributed in space and time, making it necessary to search sequentially through them, often without a chance to return to a rejected option. The optimal strategy in these tasks is to choose the first option that is above a threshold that depends on the current position in the sequence. The implicit decision-making strategies by humans vary but largely diverge from this optimal strategy. The reasons for this divergence remain unknown. We present a model of human stopping decisions in sequential decision-making tasks based on a linear threshold heuristic. The first two studies demonstrate that the linear threshold model accounts better for sequential decision making than existing models. Moreover, we show that the model accurately predicts participants' search behavior in different environments. In the third study, we confirm that the model generalizes to a real-world problem, thus providing an important step toward understanding human sequential decision making.

Keywords: optimal stopping | cognitive modeling | adaptive behavior | sequential decision making

Significance: Behavioral research has made rapid progress toward revealing the processes by which we make choices between options that are presented simultaneously. Decisions in everyday life are typically more complex. We often encounter choices where options are separated in space and time and therefore the question is, "When is the right time to stop searching?" We suggest that humans use a probabilistic threshold. A model in which this threshold changes linearly over time, where the optimal policy prescribes a nonlinear change, provides an excellent account to the data, even in real-life settings.

Chookajorn 2020

Thanat Chookajorn, *Evolving COVID-19 conundrum and its impact*. PNAS **117** (2020), 12520–12521. DOI:10.1073/pnas.2007076117.

As an evolutionary biologist working in a developing country, I have experienced firsthand how sensational findings can influence decision-making processes by

diverting time and resources. [...] [T]he developing world does not have well-informed science advisers sitting in every key meeting to help provide balanced scientific viewpoints.

Elmassry 2020

Moamen M. Elmassry, *Helping others—and myself*. science **368** (2020), 1282.

During my first year of grad school, a faculty member asked whether I'd be interested in analyzing data for one of his projects. I enjoyed new computational challenges, so I agreed to do the analyses on top of my normal Ph.D. work. Then, 1 year later, the same faculty member met with me and asked a series of questions posed by reviewers of the paper he had written. I was flustered—I had no idea that a manuscript had even been submitted to a journal—but I answered his questions. Later, though, I got up the courage to drop by his office and find out whether I was listed as a co-author, or even acknowledged, on the manuscript. He said no, acting as though the question itself was inappropriate. The experience led me to rethink my approach to collaborations.

Forster 2020

Peter Forster, Lucy Forster, Colin Renfrew & Michael Forster, *Explaining phylogenetic network analysis of SARSCoV-2 genomes, Reply to Sánchez-Pacheco et al., Chookajorn, And Mavian et al.* PNAS **117** (2020), 12524–12524. DOI:10.1073/pnas.2007433117.

We observe that documented transmission paths closely follow the order of mutations that is inferred by the network.

However, this assumption, that the oldest sampled isolate in a cohort reflects the ancestral type, is a misconception by Mavian et al. The first isolates collected from patients starting on December 24 do not reflect the root type of the outbreak, which started weeks or months earlier.

Finally, Mavian et al. (8) caution that no firm conclusion should be drawn on disease transmission routes without evaluating the probability of alternative dissemination routes. In general we would agree with this point, but here we are dealing with the very first detected infections in several countries in January and February 2020. Thus, there are no realistic alternatives to be evaluated. The first Mexican case had traveled to Italy, and the network shows his viral type descended from an Italian viral type. The early Canadian patient had traveled toWuhan and Guangdong, and the network shows his type to be descended from a Guangdong node. The first Brazilian patient had traveled to Italy, and his type is descended from an Italian type. This clear picture is initially surprising but makes sense from a mutational point of view: The virus mutates faster than one mutation per month, which is a short time relative to the serial interval of 4 to 8 d in Sars-CoV-2 infection chains (5). It therefore makes sense that the network mutations closely reflect infection pathways.

Garland 2020

Joshua Garland, Keyan Ghazi-Zahedi, Jean-Gabriel Young, Laurent Hébert-Dufresne & Mirta Galesic, *Countering hate on social media, Large scale classification of hate and counter speech*. arXiv (2020), 2006.01974. <http://arxiv.org/pdf/2006.01974>.

Hateful rhetoric is plaguing online discourse, fostering extreme societal movements and possibly giving rise to real-world violence. A potential solution to this

growing global problem is citizen-generated counter speech where citizens actively engage in hate-filled conversations to attempt to restore civil non-polarized discourse. However, its actual effectiveness in curbing the spread of hatred is unknown and hard to quantify. One major obstacle to researching this question is a lack of large labeled data sets for training automated classifiers to identify counter speech. Here we made use of a unique situation in Germany where self-labeling groups engaged in organized online hate and counter speech. We used an ensemble learning algorithm which pairs a variety of paragraph embeddings with regularized logistic regression functions to classify both hate and counter speech in a corpus of millions of relevant tweets from these two groups. Our pipeline achieved macro F1 scores on out of sample balanced test sets ranging from 0.76 to 0.97—accuracy in line and even exceeding the state of the art. On thousands of tweets, we used crowdsourcing to verify that the judgments made by the classifier are in close alignment with human judgment. We then used the classifier to discover hate and counter speech in more than 135,000 fully-resolved Twitter conversations occurring from 2013 to 2018 and study their frequency and interaction. Altogether, our results highlight the potential of automated methods to evaluate the impact of coordinated counter speech in stabilizing conversations on social media.

Mavian 2020

Carla Mavian et al., *Sampling bias and incorrect rooting make phylogenetic network tracing of SARS-COV-2 infections unreliable*. PNAS **117** (2020), 12522–12523. DOI:10.1073/pnas.2007295117.

The inappropriate application and interpretation of phylogenetic Methods to analyze limited and unevenly sampled datasets begs for restraint about origin, directionality, and early clade/ lineage inference of SARS-CoV-2.

Raker 2020

Ethan J. Raker, Meghan Zacher & Sarah R. Lowe, *Lessons from Hurricane Katrina for predicting the indirect health consequences of the COVID-19 pandemic*. PNAS **117** (2020), 12595–12597. DOI:10.1073/pnas.2006706117.

Beyond their immediate effects on mortality, disasters have widespread, indirect impacts on mental and physical well-being by exposing survivors to stress and potential trauma. Identifying the disaster-related stressors that predict health adversity will help officials prepare for the coronavirus disease 2019 (COVID-19) pandemic. Using data from a prospective study of young, lowincome mothers who survived Hurricane Katrina, we find that bereavement, fearing for loved ones' well-being, and lacking access to medical care and medications predict adverse mental and physical health 1 y postdisaster, and some effects persist 12 y later. Adjusting for preexisting health and socioeconomic conditions attenuates, but does not eliminate, these associations. The findings, while drawn from a demographically unique sample, suggest that, to mitigate the indirect effects of COVID-19, lapses in medical care and medication use must be minimized, and public health resources should be directed to those with preexisting medical conditions, their social networks, and the bereaved.

Keywords: disasters | COVID-19 pandemic | Hurricane Katrina | mental health | physical health

Sánchez-Pacheco 2020

Santiago J. Sánchez-Pacheco, Sungsik Kong, Paola Pulido-Santacruz, Robert W. Murphy & Laura Kubatko, *Median-joining network analysis*

of SARS-CoV-2 genomes is neither phylogenetic nor evolutionary. PNAS **117** (2020), 12518–12519. DOI:10.1073/pnas.2007062117.

Forster et al.'s (1) misguided attempts to apply concepts and terms such as "phylogenetic network," "ancestral," and "phylogenetic clusters" in their interpretation ignore the fact that MJ demonstrably fails in these interpretations (2, 3).

Wadman 2020

Meredith Wadman, *Vaccines that use human fetal cells draw fire*. science **368** (2020), 1170–1171. DOI:10.1126/science.368.6496.1170.

Abortion opponents urge United States and Canada to avoid "ethically-tainted" cell lines.

Human fetal cells are key to producing both types of vaccines. For the protein subunit vaccine, "Cultured [nonhuman] animal cells can produce the same proteins, but they would be decorated with different sugar molecules, which ... runs the risk of failing to evoke a robust and specific immune response," says Andrea Gambotto, a vaccine scientist at the University of Pittsburgh School of Medicine and lead developer of the vaccine. (Of the developers of the six vaccines, only Gambotto responded to a request for comment.)

Caplan disagrees. "If you are going to say the government shouldn't fund things that a minority of people object to, you will have a very long list of things that won't get funded by the government, from research on weapons of war to contraceptive research."

Anthropologie

Agranat-Tamir 2020

Lily Agranat-Tamir, Ron Pinhasi, Shai Carmi, Israel Finkelstein, Liran Carmel & David Reich et al., *The Genomic History of the Bronze Age Southern Levant*. Cell **181** (2020), 1146–1157.

In Brief: Genome-wide data from Bronze Age individuals across nine sites in the Southern Levant show strong genetic resemblance, including a component from populations related to Chalcolithic Zagros and Early Bronze Age Caucasus introduced by gene flow lasting at least until the late Bronze Age and affecting modern Levantine population architecture.

Highlights:

- Analysis of genome-wide data for nine sites from the Bronze Age Southern Levant
- Contemporaneous samples from multiple sites are genetically similar
- Migration from the Zagros and/or Caucasus to the Levant between 2500–1000 BCE
- People related to these individuals contributed to all presentday Levantine populations

We report genome-wide DNA data for 73 individuals from five archaeological sites across the Bronze and Iron Ages Southern Levant. These individuals, who share the "Canaanite" material culture, can be modeled as descending from two sources: (1) earlier local Neolithic populations and (2) populations related to the Chalcolithic Zagrosor the Bronze Age Caucasus. The non-local contribution increased over time, as evinced by three outliers who can be modeled as descendants of recent migrants. We show evidence that different "Canaanite" groups genetically resemble each other more than other populations. We find that Levant-related modern populations typically have substantial ancestry coming from populations

related to the Chalcolithic Zagros and the Bronze Age Southern Levant. These groups also harbor ancestry fromsources we cannot fullymodelwith the available data, highlighting the critical role of post-Bronze-Age migrations into the region over the past 3,000 years.

Lily Agranat-Tamir, Shamam Waldman, Mario A. S. Martin, David Gokhman, Nadav Mishol, Tzilla Eshel, Olivia Cheronet, Nadin Rohland, Swapan Mallick, Nicole Adamski, Ann Marie Lawson, Matthew Mah, Megan Michel, Jonas Oppenheimer, Kristin Stewardson, Francesca Candilio, Denise Keating, Beatriz Gamarra, Shay Tzur, Mario Novak, Rachel Kalisher, Shlomit Bechar, Vered Eshed, Douglas J. Kennett, Marina Faerman, Naama Yahalom-Mack, Janet M. Monge, Yehuda Govrin, Yigal Erel, Benjamin Yakir, Ron Pinhasi, Shai Carmi, Israel Finkelstein, Liran Carmel & David Reich

Brunel 2020

Samantha Brunel et al., *Ancient genomes from present-day France unveil 7,000 years of its demographic history*. PNAS **117** (2020), 12791–12798.

pnas117-12791-Supplement.pdf

Genomic studies conducted on ancient individuals across Europe have revealed how migrations have contributed to its present genetic landscape, but the territory of present-day France has yet to be connected to the broader European picture. We generated a large dataset comprising the complete mitochondrial genomes, Y-chromosome markers, and genotypes of a number of nuclear loci of interest of 243 individuals sampled across present-day France over a period spanning 7,000 y, complemented with a partially overlapping dataset of 58 low-coverage genomes. This panel provides a high-resolution transect of the dynamics of maternal and paternal lineages in France as well as of autosomal genotypes. Parental lineages and genomic data both revealed demographic patterns in France for the Neolithic and Bronze Age transitions consistent with neighboring regions, first with a migration wave of Anatolian farmers followed by varying degrees of admixture with autochthonous hunter-gatherers, and then substantial gene flow from individuals deriving part of their ancestry from the Pontic steppe at the onset of the Bronze Age. Our data have also highlighted the persistence of Magdalenian-associated ancestry in hunter-gatherer populations outside of Spain and thus provide arguments for an expansion of these populations at the end of the Paleolithic Period more northerly than what has been described so far. Finally, no major demographic changes were detected during the transition between the Bronze and Iron Ages.

Keywords: paleogenomics | migration | Neolithic | population genomics | protohistory

Samantha Brunel, E. Andrew Bennett, Laurent Cardin, Damien Garraud, Hlne Barrand Emam, Alexandre Beylier, Bruno Boulestin, Fanny Chenal, Elsa Ciesielski, Fabien Convertini, Bernard Dedet, Stphanie Desbrosse-Degobertiere, Sophie Desenne, Jerme Dubouloz, Henri Duday, Gilles Escalon, Vronique Fabre, Eric Gailledrat, Muriel Gandelin, Yves Gleize, Sbastien Goepfert, Jean Guilaine, Lamys Hachem, Michael Ilett, Franois Lambach, Florent Maziere, Bertrand Perrin, Suzanne Plouin, Estelle Pinard, Ivan Praud, Isabelle Richard, Vincent Riquier, Rjane Roure, Benoit Sendra, Corinne Thevenet, Sandrine Thiol, Elisabeth Vauquelin, Luc Vergnaud, Thierry Grange, Eva-Maria Geigl & Melanie Pruvost

Significance: Using genomic data as well as paternal and maternal lineages from more than 200 individuals, including 58 low-coverage ancient genomes, we show the population structure from the Mesolithic to the Iron Age in France and trace the changing frequency of genotypes associated with phenotypic traits. Importantly, we also report the late persistence of Magdalenianassociated ancestry in

hunter-gatherer populations, showing the presence of this ancestry beyond the Iberian Peninsula in the Late Paleolithic. This study complements the genomic history of western Europe for this broad period by supplying a large genetic transect of three regions of France.

Bibel

Bloch-Smith 2009

Elizabeth Bloch-Smith, *Assyrians Abet Israelite Cultic Reforms*, *Sennacherib and the Centralization of the Israelite Cult*. In: J. David Schloen (Hrsg.), *Exploring the Longue Duree*, *Essays in Honor of Lawrence E. Stager*. (Winona Lake 2009), 35–44.

An archaeological survey of destructions attributed to the Assyrians shows that, contrary to their own boastful assertions, they did not implement a scorchedearth policy throughout the entire region.

To subjugate the population, Assyrian policy apparently called for the complete devastation of a small number of well-fortified strategic sites, such as Hazor and Lachish, combined with the partial demolition of other sites, focusing on city gates and nearby structures and on administrative buildings. Peripheral villages and farmsteads were not physically destroyed, although many were abandoned.

The Assyrian impact on the Israelite cult has long been a topic of discussion, but the specific impact of the Assyrian military campaigns on Israelite cultic centralization has not received much attention. Within a few decades, beginning with Tiglath-pileser III's devastating campaign in 734 B.C.E. and culminating with Sennacherib's campaign in 701 B.C.E., Israelite, Philistine, and Judahite forts and administrative centers succumbed to Assyrian might. By 701 B.C.E., the Assyrians had secured the major Shephelah and northern Negev forts guarding the routes to Jerusalem.

That the Judahite capital city of Jerusalem managed to survive the Assyrian campaigns even after Hezekiah's treasonous behavior (2 Kings 18:7–8) in rebelling against Assyria, annexing Philistine territory, and holding hostage the loyal Assyrian vassal Padi of Ekron, served to enhance Jerusalem's status as Yahweh's chosen city. As an unintended consequence of Assyrian imperial policy, therefore, their military campaigns facilitated Hezekiah's efforts to centralize the cult in Jerusalem.

Energie

Calel 2020

Raphael Calel & Paasha Mahdavi, *The unintended consequences of antiflaring policies—and measures for mitigation*. PNAS **117** (2020), 12503–12507.

Because flaring is easily detected with high-resolution satellites whereas measurements of venting are either imprecise or prohibitively costly at scale, restrictions on flaring can push oil producers toward greater venting. Even a small increase in venting would be enough to create a net increase in global warming. Meanwhile, although gas infrastructure financing does reduce the incentive to flare and vent, it is effectively a subsidy for oil and gas production, creating incentives to increase downstream emissions.

Klima

Bliege Bird 2020

Rebecca Bliege Bird, Chloe McGuire, Douglas W. Bird, Michael H. Price, David Zeanah & Dale G. Nimmo, *Fire mosaics and habitat choice in nomadic foragers*. PNAS **117** (2020), 12904–12914.

pnas117-12904-Supplement.pdf

In the mid-1950s Western Desert of Australia, Aboriginal populations were in decline as families left for ration depots, cattle stations, and mission settlements. In the context of reduced population density, an ideal free-distribution model predicts landscape use should contract to the most productive habitats, and people should avoid areas that show more signs of extensive prior use. However, ecological or social facilitation due to Allee effects (positive density dependence) would predict that the intensity of past habitat use should correlate positively with habitat use. We analyzed fire footprints and fire mosaics from the accumulation of several years of landscape use visible on a 35,300-km2 mosaic of aerial photographs covering much of contemporary Indigenous Martu Native Title Lands imaged between May and August 1953. Structural equation modeling revealed that, consistent with an Allee ideal free distribution, there was a positive relationship between the extent of fire mosaics and the intensity of recent use, and this was consistent across habitats regardless of their quality. Fire mosaics build up in regions with low cost of access to water, high intrinsic food availability, and good access to trade opportunities; these mosaics (constrained by water access during the winter) then draw people back in subsequent years or seasons, largely independent of intrinsic habitat quality. Our results suggest that the positive feedback effects of landscape burning can substantially change the way people value landscapes, affecting mobility and settlement by increasing sedentism and local population density.

Keywords: ideal free distribution | positive density dependence | niche construction | historical ecology | hunter-gatherer mobility

Significance: Models of human habitat choice and landscape use assume that people have negative effects on resource availability, which causes them to avoid regions that are already occupied or that show signs of extensive past use in favor of regions of higher quality. We show that when people engage in activities that increase resource productivity, like burning, there is the potential for these improvements to change habitat preferences in favor of places that have been previously modified and occupied by people. This process changes the way we think about intensification (and the origins of broad-spectrum economies), which may arise not from the negative effects of people on resources, but from the positive (and often unintentional) feedbacks between people and their environments.

Zangger 1992

Eberhard Zangger, *Neolithic to Present Soil Erosion in Greece*. In: Martin Bell & John Boardman (Hrsg.), *Past and Present Soil Erosion, Archaeological and Geographical Perspectives*. Oxbow Monograph 22 (Oxford 1992), 133–147.

The first Post-glacial events of soil erosion occurred time-transgressively in different parts of Greece. Regardless of the area of observation. the earliest Holocene phase of soil instability has been most significant with respect to the quantity of moved material. Furthermore, human clearance of the natural vegetation on slopes, accompanying the introduction of widespread agriculture, appears as the most likely cause of the first landscape instability. Later soil erosion occurred with increasing frequency and decreasing magnitude, since most fragile soil had already

been washed away. New data from the Berbati-Limnes area provide striking evidence in support of a human cause of prehistoric deforestation and soil erosion at the Neolithic/Early Bronze Age transition. The first seeds of agricultural communities arose in the Argive hinterland during the Middle Neolithic. By the Final Neolithic/Early Bronze Age transition their number had increased by a factor of five ; subsequently, during Early Helladic II, it soared even more dramatically. A pollen diagram from the coastal swamps near Lerna records a drastic decline of the formerly dense oak forests in favour of Hornbeam (Carpinus) and evergreen shrubs and trees which coincided with the population increase at 4000-3000 BC. The palynological evidence by itself argues unequivocally for a strong human impact on the natural vegetation ultimately resulting in large-scale soil erosion.

Physik

Cryer-Jenkins 2020

E. A. Cryer-Jenkins & P. D. Stevenson, *Gamow's cyclist, A new look at relativistic measurements for a binocular observer*. Proc. Royal Society A **476** (2020), 2019.0703.

The visualization of objects moving at relativistic speeds has been a popular topic of study since Special Relativity's inception. While the standard exposition of the theory describes certain shapechanging effects, such as the Lorentz-contraction, it makes no mention of how an extended object would appear in a snapshot or how apparent distortions could be used for measurement. Previous work on the subject has derived the apparent form of an object, often making mention of George Gamow's relativistic cyclist thought experiment. Here, a rigorous reanalysis of the cyclist, this time in three dimensions, is undertaken for a binocular observer, accounting for both the distortion in apparent position and the relativistic colour and intensity shifts undergone by a fast-moving object. A methodology for analysing binocular relativistic data is then introduced, allowing the fitting of experimental readings of an object's apparent position to determine the distance to the object and its velocity. This method is then applied to the simulation of Gamow's cyclist, producing self-consistent results.

Keywords: Terrell rotations | visual appearance | binocular vision

Religion

Kilmer 1972

Anne Draffkorn Kilmer, *The Mesopotamian Concept of Overpopulation and Its Solution as Reflected in the Mythology*. Orientalia **41** (1972), 160–177.

We know that the problem of overpopulation continues, for all of Tablet II is devoted to a series of famines, droughts, salinization of the soil, the itch, and starvations visited on man. Some of the later versions present this series over a period of six years. In each year the gods try a different method of decimating the population. At the same time, and with each successive attempt, mankind becomes more distressing, more rebellious, and even more physically repulsive to the gods.

Story or Book

de Rijcke 2020

Sarah de Rijcke, *Beware the illusion of certainty: it can be weaponized*. nature **582** (2020), 175–176.

What happens when facts face personal, political and commercial pressures? A book on the workings of science explores.

The Matter of Facts: Skepticism, Persuasion, and Evidence in Science. Gareth Leng and Rhodri Ivor Leng. MIT Press (2020)

[F]ar from being engaged in a disinterested activity, scientists are in the business of persuasion. They write narratives to convince colleagues of their claims, or to overthrow conventional wisdom. Evidence becomes a rhetorical device: scientists might torture their data to say the right things, fail to mention evidence that contradicts their claims or add circuitous arguments that spin their evidence. Put more positively, evidence is credible only when embedded in a persuasive story. It does not speak for itself.

Another section starts as a fairly composed description of the emergence of scientific journals. It quickly turns into a passionate reproach to the commercialization of publishing and its disruptive effect on science. Corrupt journals and oligarchic publishers appear as villains, and disparaging scientists as their victims. The impact factor, once an innocent tool for librarians, is now a distorting measure that can make or break careers.