

References

Aktuell

CENTOLA 2020

Damon Centola, *Considering network interventions*. *PNAS* **117** (2020), 32833–32835. DOI:10.1073/pnas.2022584118.

Decades ago, networks research found that it only takes a few weak ties to enable an infectious disease to jump from one group to another. In epidemiological models, these individual deviations in behavior from the prescribed plan are often represented as “noise.” For instance, the model creates a random infection in one group or builds a random tie across groups. This is a reasonable approach to exploring these unpredictable features of social life, and the robustness of the findings of Nishi et al. (4) suggests that a sufficiently well-designed plan may be effective (within appropriate bounds) for limiting the dangers of the expanding pandemic.

KUPFERSCHMIDT 2021

Kai Kupferschmidt, *Fast-spreading U.K. virus variant raises alarms*. *science* **371** (2021), 9–10. DOI:10.1126/science.371.6524.9.

Scientists are scrambling to better understand effects of a series of worrisome mutations.

MAEDA 2021

Justin M. Maeda & John N. Nkengasong, *The puzzle of the COVID-19 pandemic in Africa*. *science* **371** (2021), 27–28. DOI:10.1126/science.abf8832.

More data are needed to understand the determinants of the COVID-19 pandemic across Africa.

MATHAI 2020

Varghese Mathai, Asimanshu Das, Jeffrey A. Bailey & Kenneth Breuer, *Airflows inside passenger cars and implications for airborne disease transmission*. *Science Advances* **2020**, xii, abe0000166. DOI:10.1126/sciadv.abe0166.

SciAdv2020.12-abe0000166-Supplement.pdf

Transmission of highly infectious respiratory diseases, including SARS-CoV-2, is facilitated by the transport of exhaled droplets and aerosols that can remain suspended in air for extended periods of time. A passenger car cabin represents one such situation with an elevated risk of pathogen transmission. Here we present results from numerical simulations to assess how the in-cabin microclimate of a car can potentially spread pathogenic species between occupants, for a variety of open and closed window configurations. We estimate relative concentrations and residence times of a non-interacting, passive scalar—a proxy for infectious particles—being advected and diffused by turbulent air flows inside the cabin. An air flow pattern that travels across the cabin, farthest from the occupants can potentially reduce the transmission risk. Our findings reveal the complex fluid dynamics during everyday commutes, and non-intuitive ways in which open windows can either increase or suppress airborne transmission.

SCHLOSSER 2020

Frank Schlosser, Benjamin F. Maier, Olivia Jack, David Hinrichs, Adrian Zachariae & Dirk Brockmann, *COVID-19 lockdown induces disease-mitigating structural changes in mobility networks*. [PNAS 117 \(2020\), 32883–32890](#). DOI:10.1073/pnas.2012326117.

[pnas117-32883-Supplement.pdf](#)

In the wake of the COVID-19 pandemic many countries implemented containment measures to reduce disease transmission. Studies using digital data sources show that the mobility of individuals was effectively reduced in multiple countries. However, it remains unclear whether these reductions caused deeper structural changes in mobility networks and how such changes may affect dynamic processes on the network. Here we use movement data of mobile phone users to show that mobility in Germany has not only been reduced considerably: Lockdown measures caused substantial and long-lasting structural changes in the mobility network. We find that long-distance travel was reduced disproportionately strongly. The trimming of long-range network connectivity leads to a more local, clustered network and a moderation of the “small-world” effect. We demonstrate that these structural changes have a considerable effect on epidemic spreading processes by “flattening” the epidemic curve and delaying the spread to geographically distant regions.

Keywords: COVID-19 | human mobility | mobile phones | **Significance:** During the COVID-19 pandemic, mobility restrictions have proved to be an effective mitigation strategy in many countries. To apply these measures more efficiently in the future, it is important to understand their effects in detail. In this study, we use mobile phone data to uncover profound structural changes in mobility in Germany during the pandemic. We find that a strong reduction of long-distance travel rendered mobility to be more local, such that distant parts of the country became less connected. We demonstrate that due to this loss of connectivity, infectious diseases can be slowed down in their spatial spread. Our study provides important insights into the complex effects of mobility restrictions for policymakers and future research.

SU 2020

Tao Su, Robert A. Spicer, Alexander Farnsworth & Zhe-Kun Zhou et al., *A Middle Eocene lowland humid subtropical “Shangri-La” ecosystem in central Tibet*. [PNAS 117 \(2020\), 32989–32995](#).

[pnas117-32989-Supplement.pdf](#)

Tibet’s ancient topography and its role in climatic and biotic evolution remain speculative due to a paucity of quantitative surfaceheight measurements through time and space, and sparse fossil records. However, newly discovered fossils from a present elevation of $\approx 4,850$ m in central Tibet improve substantially our knowledge of the ancient Tibetan environment. The 70 plant fossil taxa so far recovered include the first occurrences of several modern Asian lineages and represent a Middle Eocene (≈ 47 Mya) humid subtropical ecosystem. The fossils not only record the diverse composition of the ancient Tibetan biota, but also allow us to constrain the Middle Eocene land surface height in central Tibet to $\approx 1,500$ – 900 m, and quantify the prevailing thermal and hydrological regime. This “Shangri-La”-like ecosystem experienced monsoon seasonality with a mean annual temperature of ≈ 19 °C, and frosts were rare. It contained few Gondwanan taxa, yet was compositionally similar to contemporaneous floras in both North America and Europe. Our discovery quantifies a key part of Tibetan Paleogene topography and climate, and Highlights the importance of Tibet in regard to the origin of modern Asian plant species and the evolution of global biodiversity.

Keywords: biodiversity | fossil | monsoon | Tibetan Plateau | topography

Tao Su, Robert A. Spicer, Fei-Xiang Wu, Alexander Farnsworth, Jian Huang, Cédric Del Rio, Tao Deng, Lin Ding, Wei-Yu-Dong Deng, Yong-Jiang Huang, Alice Hughes, Lin-Bo Jia, Jian-Hua Jin, Shu-Feng Li, Shui-Qing Liang, Jia Liu, Xiao-Yan Liu, Sarah Sherlock, Teresa Spicer, Gaurav Srivastava, He Tang, Paul Valdes, Teng-Xiang Wang, Mike Widdowson, Meng-Xiao Wu, Yao-Wu Xing, Cong-Li Xu, Jian Yang, Cong Zhang, Shi-Tao Zhang, Xin-Wen Zhang, Fan Zhao & Zhe-Kun Zhou

Significance: The ancient topography of the Tibetan Plateau and its role in biotic evolution are still poorly understood, mostly due to a lack of fossil evidence. Our discovery of ≈ 47 -Mya plant fossils from a present elevation of 4,850 m in central Tibet, diminishes, significantly, that lack of knowledge. The fossils represent a humid subtropical vegetation and some of the 70 different plant forms show affinity to Early-Middle Eocene floras in both North America and Europe. Using leaf architecture, we calculate that the forest grew at $\approx 1,500$ -m elevation within an east-west trending valley under a monsoonal climate. Our findings highlight the complexity of Tibet's ancient landscape and emphasize the importance of Tibet in the history of global biodiversity.

VOOSEN 2021

Paul Voosen, *Slowdown in plate tectonics may have led to ice sheets.* [science](#) **371** (2021), 14.

DE VRIEZE 2021

By Jop de Vrieze, *Pfizer's vaccine raises allergy concerns.* [science](#) **371** (2021), 10–11. DOI:10.1126/science.371.6524.10.

ZIVIN 2020

Joshua Graff Zivin & Nicholas Sanders, *The spread of COVID-19 shows the importance of policy coordination.* [PNAS](#) **117** (2020), 32842–32844. DOI:10.1073/pnas.2022897117.

Adam Smith's "invisible hand," the basis for modern liberal economic policies, is predicated on the notion that, under proper conditions, what generates the most return for individuals also generates the most return for society. Modern economic theory tells us that, in the presence of externalities, the invisible hand falters. Private individual or firm decisions no longer coincide with what yields the greatest benefits for all. In the case of the current pandemic, many of the actions we can take to protect ourselves and our families from the disease generate benefits well beyond our households. Each step to prevent sickness also reduces the chance to spread that sickness to others.

Amerika

PARSSINEN 2020

Martti Pärssinen, William Balée, Alceu Ranzi & Antonia Barbosa, *The geoglyph sites of Acre, Brazil, 10 000-year-old land-use practices and climate change in Amazonia.* [Antiquity](#) **94** (2020), 1538–1556.

Hypotheses concerning climatic change during the Amazonian Holocene often assume that the presence of ancient charcoal from forest fires indicates periods of drier climate in the past. These theories, however, neglect the possibility that such charcoal may result from early human activity. This article presents new

evidence of anthropogenic ash and charcoal accumulation in the state of Acre, Brazil, dating back to c. 10 000 cal BP, which questions the value of charcoal as a proxy for phases of natural climate aridification. Carbon isotope ($\delta^{13}\text{C}$) values also suggest no significant changes in Holocene climate or vegetation. If these results are confirmed, previous studies on Amazonian Holocene climate will require re-evaluation.

Keywords: Amazonia | Holocene | climate change | geoglyphs | land-use practices

Bibel

SCHNELLE 2015

Udo Schnelle, *Die ersten 100 Jahre des Christentums 30–130 n. Chr. Die Entstehungsgeschichte einer Weltreligion*. UTB 4411 (Göttingen 2015).

Datierung

BÜNTGEN 2020

Ulf Büntgen & Clive Oppenheimer, *The importance of “year zero” in interdisciplinary studies of climate and history*. *PNAS* **117** (2020), [32845–32847](#).

The mathematical aberration of the Gregorian chronology’s missing “year zero” retains enduring potential to sow confusion in studies of paleoclimatology and environmental ancient history. The possibility of dating error is especially high when pre-Common Era proxy evidence from tree rings, ice cores, radiocarbon dates, and documentary sources is integrated. This calls for renewed vigilance, with systematic reference to astronomical time (including year zero) or, at the very least, clarification of the dating scheme(s) employed in individual studies.

Keywords: paleoclimate | year zero | climate reconstructions | dating precision | geoscience

Klima

WALKER 2020

James Walker, Vincent Gaffney, Simon Fitch, Merle Muru, Andrew Fraser, Martin Bates & Richard Bates, *A great wave, The Storegga tsunami and the end of Doggerland?* *Antiquity* **94** (2020), 1409–1425.

[Antiquity094-1409-Supplement.pdf](#)

Around 8150 BP, the Storegga tsunami struck Northwest Europe. The size of this wave has led many to assume that it had a devastating impact upon contemporaneous Mesolithic communities, including the final inundation of Doggerland, the now submerged Mesolithic North Sea landscape. Here, the authors present the first evidence of the tsunami from the southern North Sea, and suggest that traditional notions of a catastrophically destructive event may need rethinking. In providing a more nuanced interpretation by incorporating the role of local topographic variation within the study of the Storegga event, we are better placed to understand the impact of such dramatic occurrences and their larger significance in settlement studies.

Keywords: Mesolithic | Doggerland | Storegga tsunami | sea-level change | disaster archaeology

Metallzeiten

BEN-DOR EVIAN 2018

Shirly Ben-Dor Evian, *Egyptian Historiography on the Mobility of (Sea) People at the End of the Late Bronze Age*. In: JAN DRIESSEN (Hrsg.), *An Archaeology of Forced Migration, Crisis-induced mobility and the Collapse of the 13th c. BCE Eastern Mediterranean*. aegis 15 (Louvain-la-Neuve 2018), 219–228.

The reconstruction of forced mobility in the 12th century BCE Levant is largely based on the Egyptian records. Once these records have been cleared from generic elements and interpreted in the spirit of their time and context, three major trajectories can be detected:

1. Amurru, Ugarit, Mukish-Allalakh and Emar were all under attack during the first decades of the 12th century BCE. Fugitives from Amurru reached Egypt. It is very likely that, on their way to Egypt, Syrian refugees spread across the southern Levant as well, bringing with them Syrian traditions. These include lion-head cups (Zevulun 1987; Zuckerman 2008: 120-122; Meiberg 2013: 144; contra Maier 2006), certain geometric motifs on decorated pottery (Gilboa 2009) and the Syro-Canaanite plans of the temples at Tell Qasile (Mazar 1980). Philistine ivories, though highly Egyptianised, are in fact also indicative of Syrian carving techniques and compositions as attested by comparisons with ivories from Kumidi, Ugarit and Hazor (Ben-Dor Evian, in press).

2. The Sea-Peoples, perceived by the Egyptians as thr, e.g. allied forces of the Hittites, also reached Amurru. Following clashes with the Egyptian forces, prisoners of war were brought back to Egypt. Egyptian texts confirm that Sea-Peoples were endowed to a temple in Upper Egypt and mobilized against attacks from Libya. The texts therefore describe Sea-Peoples as both slaves and as prisoners of war who became conscript soldiers in the Egyptian army.

3. Foreign slaves endowed to Egyptian temples included not only Sea-Peoples but also individuals from Syria (Kharu) and Nubia. Barring the texts, these slaves have left little or no trace for their migration into Egypt.

The turn of the 12th century BCE was therefore a time of significant transformations, characterized by large movements of people across great areas, most often instigated by war and combat. These upheavals have transformed the region completely prompting the transition from the Bronze to the Iron Age in the Levant.

Politik

LAKOTTA 2020

Beate Lakotta, *Prozeß nach Halle-Attentat, "Nach dem heutigen Tage wird er mir keine Qualen mehr verursachen"*. *Der Spiegel* 2020, Sep. 1.

Am Morgen hatte Ilona B. ausgesagt, 30 Jahre alt. Sie lebt in Berlin, hat einen Master in Internationalem Recht, sie war Teil einer jüdischen Gruppe aus Berlin, die nach Halle gereist war, um mit der dortigen Gemeinde Jom Kippur zu begehen, den höchsten jüdischen Feiertag. "Wir wollten ein bisschen Leben in die Gemeinde reinbringen, es sind ja fast alles ältere Menschen. Und wir wollten aus der Großstadt rauskommen und Jom Kippur in Ruhe und Frieden begehen", sagt die Zeugin. "Hat leider nicht geklappt."

Die Frau mit dem rotblonden Pferdeschwanz berichtet in sachlichem Ton: Als man gegen Mittag in der Synagoge einen "extrem lauten Knall" von draußen gehört habe, sei das Gebet zunächst normal weitergelaufen, dann sei der zweite Knall gekommen. Von der Frauenempore aus habe sie registriert, daß es unten am

Monitor der Überwachungskamera Aufregung gegeben habe. Sie habe die Angst im Gesicht des Kantors gesehen: “Dann hieß es: Jemand schießt auf die Synagoge.” Rauchgeruch habe sich ausgebreitet.

Die Frauen hätten versucht, sich in Sicherheit zu bringen: “Die Empore hatte nur einen Weg runter, der führte am Eingang vorbei. Wenn er da reingekommen wäre, hätten wir keine Chance gehabt.”

“Was ist da in Ihnen vorgegangen?”, fragt die Vorsitzende Richterin Ursula Mertens. “Ganz ehrlich”, antwortet die Zeugin: “Ich konnte mir das nicht wirklich vorstellen. Die Idee, daß ausgerechnet in Halle jemand versucht, auf die Synagoge zu schießen, kam mir abstrus vor.”

LAKOTTA 2020

Beate Lakotta, *Letzte Worte voller Hass*. [Der Spiegel 2020, Dec. 9](#).

Am Dienstag hatten die Nebenkläger und ihre Vertreter Gelegenheit, sich vor dem anstehenden Urteil noch einmal zu äußern. Ilona B. war aufgestanden, die in der Synagoge Ziel von Balliets Angriff gewesen war: Auch sie sei auf dem Land aufgewachsen, ganz ähnlich wie der Angeklagte. Sie habe sich als Nebenklägerin an dem Verfahren beteiligt, weil sie verstehen wollte, “wie so ein Dorfjunge zum rassistischen Mörder werden kann”. Eine Erklärung hat sie nicht gefunden: “Um seinetwillen wünsche ich ihm, dass er eines Tages fühlt, was er getan hat.”

Story or Book

YANAI 2021

Itai Yanai & Martin J. Lercher, *Science’s irrational origins*. [science 371 \(2021\), 37](#).

Disputes in modern science are settled with empiricism alone, an approach early scholars would have questioned.

The Knowledge Machine. Michael Strevens. Liveright, 2020. 368 pp.

This rule holds that differences in scientific opinion must be settled by empirical testing alone. Thus, a scientist cannot argue for one hypothesis over another because it is more beautiful or more appealing philosophically or because it is better aligned with “God’s plan.” The iron rule applies only to official communications. Outside of such venues, scientists may think and believe as they wish.