

References

Aktuell

BLAU 2020

Andrew Blau & Peter Schwartz, *The world remade by COVID-19, Scenarios for resilient leaders — 3–5 years*. Deloitte Development LLC 2020, Apr. 6. <<http://www2.deloitte.com/hr/en/pages/about-deloitte/articles/covid-19-svijet-preobrazen-pandemijom-koronavirusa.html>> (2022-01-07).

Remember, these scenarios suggest a range of possible outcomes as the COVID-19 crisis evolves. It is too soon to tell which of these or other scenarios will emerge, but resilient leaders are preparing now for what the future may hold.

BUCHAN 2022

Sarah A. Buchan et al., *Effectiveness of COVID-19 vaccines against Omicron or Delta infection*. medRxiv 2022, Jan. 1. DOI:10.1101/2021.12.30.21268565.

Background: The incidence of SARS-CoV-2 infection, including among those who have received 2 doses of COVID-19 vaccines, has increased substantially since Omicron was first identified in the province of Ontario, Canada.

Methods: Applying the test-negative design to linked provincial data, we estimated vaccine effectiveness against infection (irrespective of symptoms or severity) caused by Omicron or Delta between November 22 and December 19, 2021. We included individuals who had received at least 2 COVID-19 vaccine doses (with at least 1 mRNA vaccine dose for the primary series) and used multivariable logistic regression to estimate the effectiveness of two or three doses by time since the latest dose.

Results: We included 3,442 Omicron-positive cases, 9,201 Delta-positive cases, and 471,545 test-negative controls. After 2 doses of COVID-19 vaccine, vaccine effectiveness against Delta infection declined steadily over time but recovered to 93 % (95 %CI, 92-94 %) ≥ 7 days after receiving an mRNA vaccine for the third dose. In contrast, receipt of 2 doses of COVID-19 vaccines was not protective against Omicron. Vaccine effectiveness against Omicron was 37 % (95 %CI, 19-50 %) ≥ 7 days after receiving an mRNA vaccine for the third dose.

Conclusions: Two doses of COVID-19 vaccines are unlikely to protect against infection by Omicron. A third dose provides some protection in the immediate term, but substantially less than against Delta. Our results may be confounded by behaviours that we were unable to account for in our analyses. Further research is needed to examine protection against severe outcomes.

Sarah A. Buchan, Hannah Chung, Kevin A. Brown, Peter C. Austin, Deshayne B. Fell, Jonathan B. Gubbay, Sharifa Nasreen, Kevin L. Schwartz, Maria E. Sundaram, Mina Tadrous, Kumanan Wilson, Sarah E. Wilson & Jeffrey C. Kwong on behalf of the Canadian Immunization Research Network (CIRN) Provincial Collaborative Network (PCN) Investigators

JIANG 2021

Hui Jiang & Ya-Fang Mei, *SARS-CoV-2 Spike Impairs DNA Damage Repair and Inhibits V(D)J Recombination In Vitro*. *Viruses* **13** (2021), 2056, 1–10. DOI:10.3390/v13102056.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has led to the coronavirus disease 2019 (COVID-19) pandemic, severely affecting public health and the global economy. Adaptive immunity plays a crucial role in fighting against SARS-CoV-2 infection and directly influences the clinical outcomes of patients. Clinical studies have indicated that patients with severe COVID-19 exhibit delayed and weak adaptive immune responses; however, the mechanism by which SARS-CoV-2 impedes adaptive immunity remains unclear. Here, by using an in vitro cell line, we report that the SARS-CoV-2 spike protein significantly inhibits DNA damage repair, which is required for effective V(D)J recombination in adaptive immunity. Mechanistically, we found that the spike protein localizes in the nucleus and inhibits DNA damage repair by impeding key DNA repair protein BRCA1 and 53BP1 recruitment to the damage site. Our findings reveal a potential molecular mechanism by which the spike protein might impede adaptive immunity and underscore the potential side effects of full-length spike-based vaccines.

Keywords: SARS-CoV-2 | spike | DNA damage repair | V(D)J recombination | vaccine

KUPFERSCHMIDT 2022

Kai Kupferschmidt & Gretchen Vogel, *Omicron threat remains fuzzy as cases explode*. *science* **375** (2022), 9–10. DOI:10.1126/science.acz9928.

Many countries break infection records; how much severe disease they will see is unclear.

Anthropologie

WYNN 2016

Thomas Wynn, Karenleigh A. Overmann & Frederick L. Coolidge, *The false dichotomy, A refutation of the Neandertal indistinguishability claim*. *Journal of Anthropological Sciences* **94** (2016), 201–221.

In the debate about the demise of the Neandertal, several scholars have claimed that humanity's nearest relatives were indistinguishable archaeologically, and thus behaviorally and cognitively, from contemporaneous *Homo sapiens*. They suggest that to hold otherwise is to characterize Neandertals as inferior to *H. sapiens*, a false dichotomy that excludes the possibility that the two human types simply differed in ways visible to natural selection, including their cognition. Support of the Neandertal indistinguishability claim requires ignoring the cranial differences between the two human types, which have implications for cognition and behavior. Further, support of the claim requires minimizing asymmetries in the quantity and degree of behavioral differences as attested by the archaeological record. The present paper reviews the evidence for cognitive and archaeological differences between the two human types in support of the excluded middle position.

Keywords: Neandertals | Encephalization | Globularization | Cognitive Evolution.

Archäologie

MÜLLER 2021

Johannes Müller, *Das 3. vorchristliche Jahrtausend, Ein Zeitalter der Globalisierung*. In: DOREEN HOLDERS, MICHAEL M. RIND, KERSTIN SCHIERHOLD, WOLFGANG NEUBAUER & JULIAN RICHARDS (Hrsg.), *Stonehenge – Von Menschen und Landschaften, Ausstellung Westfälisches Landesmuseum Herne, 23. September 2021 – 25. September 2022*. (Petersberg 2021), 78–91.

Blicken wir auf das 3. Jahrtausend zurück, so ist es geprägt von großen Kommunikationsräumen. Diese werden erkennbar um 3100 v. Chr. durch das Kugelamphoren-Phänomen, das sich aus regionalen Trichterbechergesellschaften entwickelte, um 2800 v. Chr. durch das Schnurkeramik-Phänomen, das u. a. mit der Zuwanderung spezifischer östlicher Männergruppen in Verbindung gebracht wurde, und um ca. 2500 v. Chr. durch das Glockenbecher-Phänomen, das sich sowohl in seiner mitteleuropäischen als auch seiner südwesteuropäischen Verbreitung im einheimischen Substrat unter Beibehaltung der äußeren Mobilitätsbezüge entwickelt. Unabhängig von Fluktuationen ist eine Zunahme an Mobilität von Gütern und Menschen erkennbar, eine Zunahme der Offenheit im habitus der lokalen Gemeinschaften, die problemlos neue Elemente in ihr Leben integrieren, aber auch die Entstehung neuer Religionen, die sich insbesondere in den letzten beiden Jahrhunderten des 3. vorchristlichen Jahrtausends in den Kreisanlagen zwischen Wessex und dem Magdeburger Land darstellen.

Bibel

ALBERTZ 2021

Rainer Albertz, *Die Josephsgeschichte im Pentateuch, Ein Beitrag zur Überwindung einer anhaltenden Forschungskontroverse*. Forschungen zum Alten Testament 153 (Tübingen 2021).

Die hier vorgelegte ausführliche exegetische Untersuchung führt somit zu einem recht klaren Ergebnis, das vielleicht einige Leserinnen und Leser in seiner Eindeutigkeit überraschen mag: Die ursprüngliche Josephsgeschichte (JG) reflektiert im Rahmen eines ursprungsgeschichtlichen Familienkonflikts über das Bedrohungs- und Leistungspotential politischer Herrschaft, insbesondere der staatlichen Herrschaft des Nordreichs über ganz Israel. Die erweiterte Josephsgeschichte (EJG) setzt sodann eine in Israel gewünschte “brüderliche” Herrschaftsform kritisch von einem als absolutistisch gekennzeichneten ägyptischen Staatswesen ab. Insofern wird durch diese Untersuchung der erste Auslegungstyp bestätigt, ausgebaut und modifiziert. Aber auch die Überlegungen des zweiten Auslegungstyp, dass im Rahmen der Josephsgeschichte über Chancen und Gefahren der Diasporaexistenz Israels reflektiert werde, haben durchaus ihre Anhaltspunkte im Text. Nur gehören die betreffenden Textpassagen erst zur späteren innerbiblischen Auslegung, welcher die Josephsgeschichte im Zuge ihrer Einarbeitung in größere Zusammenhänge unterzogen wurde.

Datierung

ŞAHOĞLU 2022

Vasif Şahoğlu, Johannes H. Sterba, Timor Katz & Beverly N. Goodman-Tchernov et al., *Volcanic ash, victims, and tsunami debris*

from the Late Bronze Age Thera eruption discovered at Çeşme-Bağlararası. *PNAS* **119** (2022), e2114213118.

pnas119-e2114213118-Supplement1.pdf, pnas119-e2114213118-Supplement2.xlsx

The Late Bronze Age Thera eruption was one of the largest natural disasters witnessed in human history. Its impact, consequences, and timing have dominated the discourse of ancient Mediterranean studies for nearly a century. Despite the eruption's high intensity (Volcanic Explosivity Index 7; Dense Rock Equivalent of 78 to 86 km) [T. H. Druitt, F. W. McCoy, G. E. Vougioukalakis, *Elements* 15, 185–190 (2019)] and tsunami-generating capabilities [K. Minoura et al., *Geology* 28, 59–62 (2000)], few tsunami deposits are reported. In contrast, descriptions of pumice, ash, and tephra deposits are widely published. This mismatch may be an artifact of interpretive capabilities, given how rapidly tsunami sedimentology has advanced in recent years. A well-preserved volcanic ash layer and chaotic destruction horizon were identified in stratified deposits at Cesme-Baglararası, a western Anatolian/Aegean coastal archaeological site. To interpret these deposits, archaeological and sedimentological analysis (X-ray fluorescence spectroscopy instrumental neutron activation analysis, granulometry, micropaleontology, and radiocarbon dating) were performed. According to the results, the archaeological site was hit by a series of strong tsunamis that caused damage and erosion, leaving behind a thick layer of debris, distinguishable by its physical, biological, and chemical signature. An articulated human and dog skeleton discovered within the tsunami debris are in situ victims related to the Late Bronze Age Thera eruption event. Calibrated radiocarbon ages from well-constrained, short-lived organics from within the tsunami deposit constrain the event to no earlier than 1612 BCE. The deposit provides a time capsule that demonstrates the nature, enormity, and expansive geographic extent of this catastrophic event.

Keywords: tsunami | volcanic ash | Minoan | geoarchaeology | Aegean

Vasif Şahoğlu, Johannes H. Sterba, Timor Katz, Ümit Çayır, Ümit Gündoğan, Natalia Tyuleneva, İrfan Tuğcu, Max Bichler, Hayat Erkanal & Beverly N. Goodman-Tchernov

Significance: The significance of this study is multi-faceted, touching upon methodological advances in multidisciplinary approaches (earth sciences/geology–archaeology) as well as contributing to the historical and chronological understanding of the Late Bronze Age Thera eruption impacts. Our study presents physical evidence that very large, damaging tsunamis arrived even in the northern Aegean, an area previously assumed to be affected only by ash fallout. The tsunami deposits at Cesme-Baglararası contain the first victims (human and dog) ever identified related to the eruption and its immediate consequences. The work also introduces nine radiocarbon ages directly from the event deposit that will be of great interest and cause significant discussion amongst scholars, particularly given their context within a well-constrained, undisturbed, stratigraphic archaeological sequence.

Energie

WOLFRAM 2021

Paul Wolfram, Stephanie Weber, Kenneth Gillingham & Edgar G. Hertwich, *Pricing indirect emissions accelerates low-carbon transition of US light vehicle sector*. *Nature Communications* **12** (2021), 7121, 1–8. DOI:10.1038/s41467-021-27247-y.

NatComm12-a07121-Supplement.pdf

Large-scale electric vehicle adoption can greatly reduce emissions from vehicle tailpipes. However, analysts have cautioned that it can come with increased in-

direct emissions from electricity and battery production that are not commonly regulated by transport policies. We combine integrated energy modeling and life cycle assessment to compare optimal policy scenarios that price emissions at the tailpipe only, versus both tailpipe and indirect emissions. Surprisingly, scenarios that also price indirect emissions exhibit higher, rather than reduced, sales of electric vehicles, while yielding lower cumulative tailpipe and indirect emissions. Expected technological change ensures that emissions from electricity and battery production are more than offset by reduced emissions of gasoline production. Given continued decarbonization of electricity supply, results show that a large-scale adoption of electric vehicles is able to reduce CO₂ emissions through more channels than previously expected. Further, carbon pricing of stationary sources will also favor electric vehicles.

Judentum

LISS 2016

Hanna Liss, *Ein Pentateuch wie andere auch? Die Lese-Geheimnisse des Regensburg Pentateuchs*. In: FRIEDRICH-EMANUEL FOCKEN & MICHAEL R. OTT (Hrsg.), *Metatexte, Erzählungen von schrifttragenden Artefakten in der alttestamentlichen und mittelalterlichen Literatur*. Materiale Textkulturen 15 (Berlin 2016), 299–334.

Wir haben gesehen, dass dieser Pentateuch weit mehr enthält als “nur” den biblischen Text: Das Geschriebene einschließlich der tagin bildet in diesem Fall eine bildliche Ebene über oder hinter dem Text und ist darin Träger einer über den Text hinausgehenden und vor allem nicht selbst-evidenten Semantik, die offen ist für alles Mögliche. Wie offen sie sein konnte, konnten die hier nur beispielhaft gebotenen Metatexte zeigen. Ohne diese Metatexte würde das Manuskript seine Geheimnisse nicht preisgeben, denn auch der Schreiber teilt uns nicht mit, welche tagin er warum geschrieben hat. Vielleicht will er es uns auch nicht mitteilen, dann ist es tatsächlich eine torat ha-sod, eine Geheimlehre, wie sie für die haside ashkenas typisch war.

Klima

BEAUFORT 2022

Luc Beaufort, Clara T. Bolton & Anta-Clarisse Sarr et al., *Cyclic evolution of phytoplankton forced by changes in tropical seasonality*. *nature* **601** (2022), 79–84.

Although the role of Earth’s orbital variations in driving global climate cycles has long been recognized, their effect on evolution is hitherto unknown. The fossil remains of coccolithophores, a key calcifying phytoplankton group, enable a detailed assessment of the effect of cyclic orbital-scale climate changes on evolution because of their abundance in marine sediments and the preservation of their morphological adaptation to the changing environment^{1,2}. Evolutionary genetic analyses have linked broad changes in Pleistocene fossil coccolith morphology to species radiation events³. Here, using high-resolution coccolith data, we show that during the last 2.8 million years the morphological evolution of coccolithophores was forced by Earth’s orbital eccentricity with rhythms of around 100,000 years and 405,000 years—a distinct spectral signature to that of coeval global climate cycles⁴. Simulations with an Earth System Model⁵ coupled with an ocean

biogeochemical models show a strong eccentricity modulation of the seasonal cycle, which we suggest directly affects the diversity of ecological niches that occur over the annual cycle in the tropical ocean. Reduced seasonality in surface ocean conditions favours species with mid-size coccoliths, increasing coccolith carbonate export and burial; whereas enhanced seasonality favours a larger range of coccolith sizes and reduced carbonate export. We posit that eccentricity pacing of phytoplankton evolution contributed to the strong 405,000-year cyclicity that is seen in global carbon cycle records.

Luc Beaufort, Clara T. Bolton, Anta-Clarisse Sarr, Baptiste Suchéras-Marx, Yair Rosenthal, Yannick Donnadieu, Nicolas Barbarin, Samantha Bova, Pauline Cornuault, Yves Gally, Emmeline Gray, Jean-Charles Mazur & Martin Tetard

DREIBRODT 2022

Stefan Dreibrodt et al., *Earthworms, Darwin and prehistoric agriculture-Chernozem genesis reconsidered*. [Geoderma 409 \(2022\), 115607, 1–14](#).

Chernozems are among the most fertile agricultural soils on Earth and are important terrestrial carbon reservoirs. Since the Miocene-advent of grassland-ecosystems, they develop on fine-grained calcareous parent materials, generally in continental climates. So far, no theory explains all Chernozem occurrences. This limits modeling of their long-term soil carbon dynamics. Insights gained on Chernozems that buried prehistoric archaeological features in central Ukraine provide a key. Prehistoric agriculture favored anecic earthworm abundance and anecic earthworm surface casting delivers the best explanation for coeval Chernozem genesis, its properties, and distribution, an idea originally put forward by Darwin. Anecic earthworms transfer soil material upwards due to the necessity to clear their vertical burrow permanently from material fallen in. While Chernozems in the climatic steppe form under climate conditions that limit epigeic and endogeic earthworms naturally, the patchy and time-transgressive Chernozem occurrences in temperate humid Europe would reflect sites where the proliferation of anecic earthworms at the expense of the former ecological groups resulted from early Anthropocene landscape transformations. We will have to add anecic earthworms to the Neolithic Package that identifies the socioeconomical transformations related to sedentarism and evolving agrarian production modes of cereal cultivation and animal husbandry.

Keywords: Chernozem | Anecic earthworms | Soil Formation | Trypillia Chalcolithic Giant Settlement Sites | Anthropocene | Central Ukraine

Stefan Dreibrodt, Robert Hofmann, Marta Dal Corso, Hans-Rudolf Bork, Rainer Duttmann, Sarah Martini, Philipp Saggau, Lorenz Schwark, Liudmyla Shatilo, Michail Videiko, Marie-Josée Nadeau, Pieter Meiert Grootes, Wiebke Kirleis & Johannes Müller

FEDICK 2022

Scott L. Fedick & Louis S. Santiago, *Large variation in availability of Maya food plant sources during ancient droughts*. [PNAS 119 \(2022\), e2115657118](#).

[pnas119-e2115657118-Supplement.pdf](#)

Paleoclimatic evidence indicating a series of droughts in the Yucatan Peninsula during the Terminal Classic period suggests that climate change may have contributed to the disruption or collapse of Classic Maya polities. Although climate change cannot fully account for the multifaceted, political turmoil of the period, it is clear that droughts of strong magnitude could have limited food availability, potentially causing famine, migration, and societal decline. Maize was undoubtedly

an important staple food of the ancient Maya, but a complete analysis of other food resources that would have been available during drought remains unresolved. Here, we assess drought resistance of all 497 indigenous food plant species documented in ethnographic, ethnobotanical, and botanical studies as having been used by the lowland Maya and classify the availability of these plant species and their edible components under various drought scenarios. Our analysis indicates availability of 83% of food plant species in short-term drought, but this percentage drops to 22% of food plant species available in moderate drought up to 1 y. During extreme drought, lasting several years, our analysis indicates availability of 11% of food plant species. Our results demonstrate a greater diversity of food sources beyond maize that would have been available to the Maya during climate disruption of the Terminal Classic period than has been previously acknowledged. While drought would have necessitated shifts in dietary patterns, the range of physiological drought responses for the available food plants would have allowed a continuing food supply under all but the most dire conditions.

Keywords: Maya | ethnobotany | agriculture | drought | sustainability

Significance: The disruption of Classic Maya society coincided with extended droughts, as suggested by numerous paleoclimatic studies. However, the role of drought in civil upheaval and demographic decline is complicated by the difficulty of linking relatively coarse estimates of meteorological drought with fine-scale plant processes that underpin agriculture. Our analysis of drought resistance across the historically documented, indigenous food plants of ethnographic Maya groups shows a broad range of foods gradually dwindling through droughts of increasing severity. This finding implies that short to moderate droughts could have caused agricultural disruption but not subsistence collapse. However, multiyear extreme drought is consistent with agricultural collapse and the specter of starvation, unless mitigated by food storage or trade from areas less affected by drought.

RICKABY 2022

Rosalind E. M. Rickaby, *Earth's eccentricity shapes evolution*. [nature 601 \(2022\), 27–28](#).

Analysis of plankton fossils has revealed pulses of size diversity that are inextricably linked to the degree of circularity of Earth's orbits. Could this orbital variability provide a beat that dictates the rhythm of evolution?

Mittelpaläolithikum

COOLIDGE 2021

Frederick L. Coolidge, *The Role of Cannibalism in the Extinction of the Neandertals, Could a Neandertal taste for Neandertal have hastened their downfall?* [Psychology Today 2021, Dec. 27](#). <<http://www.psychologytoday.com/us/blog/how-think-neandertal/202112/the-role-cannibalism-in-the-extinction-the-neandertals>> (2022-01-07).

Key Points:

- Anthropologists continue to debate why Neandertals, a now-extinct species of human, died out approximately 30,000 years ago.
- A new model suggests the practice of cannibalism may have contributed to the Neandertals' extinction.
- Although individuals can benefit from cannibalism, especially in resource-poor areas, the species as a whole may not.

- Neandertals may have practiced cannibalism even when other resources were plentiful, though the reason why is not fully understood.

ROUGIER 2016

Hélène Rougier et al., *Neandertal cannibalism and Neandertal bones used as tools in Northern Europe*. *Scientific Reports* **6** (2016), 29005. DOI:10.1038/srep29005.

SciRep06-29005-Supplement.pdf

Almost 150 years after the first identification of Neandertal skeletal material, the cognitive and symbolic abilities of these populations remain a subject of intense debate. We present 99 new Neandertal remains from the Troisième caverne of Goyet (Belgium) dated to 40,500–45,500 calBP. The remains were identified through a multidisciplinary study that combines morphometrics, taphonomy, stable isotopes, radiocarbon dating and genetic analyses. The Goyet Neandertal bones show distinctive anthropogenic modifications, which provides clear evidence for butchery activities as well as four bones having been used for retouching stone tools. In addition to being the first site to have yielded multiple Neandertal bones used as retouchers, Goyet not only provides the first unambiguous evidence of Neandertal cannibalism in Northern Europe, but also Highlights considerable diversity in mortuary behaviour among the region’s late Neandertal population in the period immediately preceding their disappearance.

Hélène Rougier, Isabelle Crevecoeur, Cédric Beauval, Cosimo Posth, Damien Flas, Christoph Wißing, Anja Furtwängler, Mietje Germonpré, Asier Gómez-Olivencia, Patrick Semal, Johannes van der Plicht, Hervé Bocherens & Johannes Krause

Politik

GREENWALD 2021

Daniel L. Greenwald, Martin Lettau & Sydney C. Ludvigson, *How the wealth was won: Factors shares as market fundamentals*, *Working Paper 25769*. National Bureau of Economic Research **2021**, Apr. 8. <<http://www.nber.org/papers/w25769>> (2022-01-07).

Why do stocks rise and fall? From 1989 to 2017, \$34 trillion of real equity wealth (2017:Q4 dollars) was created by the U.S. corporate sector. We estimate that 44% of this increase was attributable to a reallocation of rewards to shareholders in a decelerating economy, primarily at the expense of labor compensation. Economic growth accounted for just 25%, followed by a lower risk price (18%), and lower interest rates (14%). The period 1952 to 1988 experienced less than one third of the growth in market equity, but economic growth accounted for more than 100% of it.