Liste erstellt am 2017-04-07

References

Aktuell

Cressey 2017

Daniel Cressey, *Age of the Arduino*. nature **544** (2017), 125–126.

A booming market for small, cheap 'single-board computers' offers researchers a helping hand in fields such as automation, networking and data collection.

Diamandis 2017

Eleftherios Diamandis, *A growing phobia*. nature **544** (2017), 129.

If you are terrified to meet with your supervisor, start with small doses, says Eleftherios Diamandis.

Supervisor phobia, as I call it, is an irrational fear that I have seen often among trainees in my 30-plus years as a faculty member. Yes, some principal investigators are harsh and unsupportive. But in my experience, this phobia is unrelated to a supervisor's behaviour — or even to a graduate student's or postdoc's initial promise. Instead, it describes junior researchers' fear of meeting with their supervisors and discussing their own research. The phobia usually develops during the first or second meeting.

Editorial 2017

Under the cover. nature **544** (2017), 5–6.

A study of reading habits reveals political divisions in scientific interests.

Buyers of "blue books" (the liberals) tended to pick from basic science topics, including physics, astronomy and zoology. "Red" customers preferred books that discussed applied and commercial science, such as medicine, criminology and geophysics. And whereas liberal choices tended to reflect mainstream thinking, "red books" tended to be co-purchased with a narrower subset of science books on the fringes of each subject.

Frischkorn 2017

Kyle Frischkorn, *Sailing through uncertainty*. science **355** (2017), 986.

I hefted the metal storm cover blocking my porthole and squinted into the morning light: nothing but ocean. It was day one of a research expedition in the middle of the South Pacific and my stomach was somersaulting. But it wasn't because of the pitch and roll of the ship—I had better sea legs than that. The dawning realization that was making me nauseated was that, although I loved science, I didn't want to be a scientist.

Notomi 2017

Masaya Notomi, *Chain mail reverses the Hall effect*. nature **544** (2017), 44–45.

The sign of a material's charge carriers is usually reflected in the sign of the 'Hall voltage'. But for a structure inspired by chain mail, altering its geometry inverts the Hall voltage, even if the charge carriers are unchanged.

Ramirez 2017

Ramses M. Ramirez & Lisa Kaltenegger, *A Volcanic Hydrogen Habitable Zone*. The Astrophysical Journal Letters **837** (2017), L4.

The classical habitable zone (HZ) is the circular region around a star in which liquid water could exist on the surface of a rocky planet. The outer edge of the traditional N2–CO2–H2O HZ extends out to nearly ≈1.7 au in our solar system, beyond which condensation and scattering by CO2 outstrips its greenhouse capacity. Here, we show that volcanic outgassing of atmospheric H2 can extend the outer edge of the HZ to ≈2.4 au in our solar system. This wider volcanic-hydrogen HZ (N2–CO2–H2O–H2) can be sustained as long as volcanic H2 output offsets its escape from the top of the atmosphere. We use a single-column radiative-convective climate model to compute the HZ limits of this volcanic hydrogen HZ for hydrogen concentrations between 1 % and 50 %, assuming diffusionlimited atmospheric escape. At a hydrogen concentration of 50 %, the effective stellar ux required to support the outer edge decreases by ≈35 %–60 % for M–A stars. The corresponding orbital distances increase by ≈30 %–60 %. The inner edge of this HZ only moves out ≈0.1 %–4 % relative to the classical HZ because H2 warming is reduced in dense H2O atmospheres. The atmospheric scale heights of such volcanic H2 atmospheres near the outer edge of the HZ also increase, facilitating remote detection of atmospheric signatures.

Keywords: astrobiology – planets and satellites: atmospheres – planets and satellites: terrestrial planets

Amerika

Levis 2017

C. Levis et al., *Persistent effects of pre-Columbian plant domestication on Amazonian forest composition*. science **355** (2017), 925–931.

C. Levis, H. ter Steege, F. R. C. Costa, F. Bongers, M. Peña-Claros, C. R. Clement, A. B. Junqueira & N. C. A. Pitman

The extent to which pre-Columbian societies altered Amazonian landscapes is hotly debated. We performed a basin-wide analysis of pre-Columbian impacts on Amazonian forests by overlaying known archaeological sites in Amazonia with the distributions and abundances of 85 woody species domesticated by pre-Columbian peoples. Domesticated species are five times more likely than nondomesticated species to be hyperdominant. Across the basin, the relative abundance and richness of domesticated species increase in forests on and around archaeological sites. In southwestern and eastern Amazonia, distance to archaeological sites strongly influences the relative abundance and richness of domesticated species. Our analyses indicate that modern tree communities in Amazonia are structured to an important extent by a long history of plant domestication by Amazonian peoples.

C. Levis, F. R. C. Costa, F. Bongers, M. Peña-Claros, C. R. Clement, A. B. Junqueira, E. G. Neves, E. K. Tamanaha, F. O. G. Figueiredo, R. P. Salomão, C. V. Castilho, W. E. Magnusson, O. L. Phillips, J. E. Guevara, D. Sabatier, J.-F. Molino, D. Cárdenas López, A. M. Mendoza, N. C. A. Pitman, A. Duque, P. Núñez Vargas, C. E. Zartman, R. Vasquez, A. Andrade, J. L. Camargo, T. R. Feldpausch, S. G. W. Laurance, W. F. Laurance, T. J. Killeen, H. E. Mendonça Nascimento, J. C. Montero, B. Mostacedo, I. L. Amaral, I. C. Guimarães Vieira, R. Brienen, H. Castellanos, J. Terborgh, M. de Jesus Veiga Carim, J. R. da Silva Guimarães, L. de Souza Coelho, F. D. de Almeida Matos, F. Wittmann, H. F. Mogollón, G. Damasco, N. Dávila, R. García-Villacorta, E. N. H. Coronado, T. Emilio, D. de Andrade Lima Filho, J. Schietti, P. Souza,N. Targhetta, J. A.

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Anthropologie

Gibbons 2017

Ann Gibbons, *Close relative of Neandertals unearthed in China*. science **355** (2017), 899.

Partial skulls may belong to elusive Denisovans, who are known almost exclusively by their DNA.

In a paper published on p. 969 of this issue, a Chinese-U.S. team presents 105,000to 125,000-year-old fossils they call “archaic Homo.” They note that the bones could be a new type of human or an eastern variant of Neandertals. But although the team avoids the word, “everyone else would wonder whether these might be Denisovans,” which are close cousins to Neandertals, says paleoanthropologist Chris Stringer of the Natural History Museum in London.

Kordsmeyer 2017

Tobias Kordsmeyer, Pádraig Mac Carron & R. I. M. Dunbar, *Sizes of Permanent Campsite Communities Reflect Constraints on Natural Human Communities*. Current Anthropology **58** (2017), 289–294.

Li 2017

Zhan-Yang Li, Xiu-Jie Wu, Li-Ping Zhou, Wu Liu, Xing Gao, Xiao-Mei Nian & Erik Trinkaus, *Late Pleistocene archaic human crania from Xuchang, China*. science **355** (2017), 969–972.

Two early Late Pleistocene (≈105,000- to 125,000-year-old) crania from Lingjing, Xuchang, China, exhibit a morphological mosaic with differences from and similarities to their western contemporaries. They share pan–Old World trends in encephalization and in supraorbital, neurocranial vault, and nuchal gracilization. They reflect eastern Eurasian ancestry in having low, sagittally flat, and inferiorly broad neurocrania. They share occipital (suprainiac and nuchal torus) and temporal labyrinthine (semicircular canal) morphology with the Neandertals. This morphological combination reflects Pleistocene human evolutionary patterns in

general biology, as well as both regional continuity and interregional population dynamics.

Rodríguez-Hidalgo 2017

Antonio Rodríguez-Hidalgo et al., *Human predatory behavior and the social implications of communal hunting based on evidence from the TD10.2 bison bone bed at Gran Dolina (Atapuerca, Spain).* Journal of Human Evolution **105** (2017), 89–122.

JHumEvo105-0089-Supplement.docx

Antonio Rodríguez-Hidalgo, Palmira Saladié, Andreu Ollé, Juan Luis Arsuaga, José María Bermúdez de Castro & Eudald Carbonell

Zooarcheological research is an important tool in reconstructing subsistence, as well as for inferring relevant aspects regarding social behavior in the past. The organization of hunting parties, forms of predation (number and rate of animals slaughtered), and the technology used (tactics and tools) must be taken into account in the identification and classification of hunting methods in prehistory. The archeological recognition of communal hunting reflects an interest in evolutionary terms and their inherent implications for anticipatory capacities, social complexity, and the development of cognitive tools, such as articulated language. Late and Middle Paleolithic faunal assemblages in Europe have produced convincing evidence of communal hunting of large ungulates allowing for the formation of hypotheses concerning the skills of Neanderthals anatomically modern humans as social predators. However, the emergence of this cooperative behavior is not currently understood. Here, faunal analysis, based on traditional/long-established zooarcheological methods, of nearly 25,000 faunal remains from the "bison bone bed" layer of the TD10.2 sub-unit at Gran Dolina, Atapuerca (Spain) is presented. In addition, other datasets related to the archeo-stratigraphy, paleolandscape, paleo-environmental proxies, lithic assemblage, and ethno-archeological information of communal hunting have been considered in order to adopt a holistic approach to an investigation of the subsistence strategies developed during deposition of the archeological remains.

The results indicate a monospecific assemblage heavily dominated by axial bison elements. The abundance of anthropogenic modifications and the anatomical profile are in concordance with early primary access to carcasses and the development of systematic butchering focused on the exploitation of meat and fat for transportation of high-yield elements to somewhere out of the cave. Together with a catastrophic and seasonal mortality pattern, the results indicate the procurement of bison by communal hunting as early as circa 400 kyr. This suggests that the cognitive, social, and technological capabilities required for successful communal hunting were at least fully developed among the pre-Neanderthal paleodeme of Atapuerca during the Lower Paleolithic. Similarly, the early existence of mass communal hunting as a predation technique informs our understanding of the early emergence of predatory skills similar to those exhibited by modern communal hunters.

Keywords: Zooarcheology | Taphonomy | Subsistence | Lower Paleolithic | Large game | Kill site

Bibel

Demsky 1966

A. Demsky, *The 'Houses of Achzib', A critical Note on Micah 1:14b.* Israel Exploration Journal **16** (1966), 211–215.

On the basis of a passage in Chronicles, we believe we have identified the Judean Achzib as a site of a royal industrial plant and, in so doing, to have also shed more light on the economic history of ancient Israel. We can now understand that Micah referring to these workshops said, 'The factories of Achzib are a loss to the kings of Israel'.

Demsky 1994

Aaron Demsky, *Who Came First, Ezra or Nehemiah? The Synchronistic Approach*. Hebrew Union College Annual **65** (1994), 1–19.

One of the most difficult and intriguing historical problems of the Period of the Restoration is the relative and absolute chronologies of Ezra and Nehemiah. Three basic solutions to the problem have been suggested, each with an almost equal number of adherents. Each approach has tried to come to grips with the chronological data presented in the Books of Ezra and Nehem iah. The data are sometimes so exact as to give day, month and year of a described event. Even so, these divergent opinions have raised more questions than they have answered. In this paper, we review the basic assumptions and present a new reconstruction which we call the "Synchronistic Approach". We submit that the two historiographic strands, i.e., the " Ezra Source" and the "Nehem iah Mem oir" are based on two different, overlapping dating systems: a priestly and civil chronology, respectively. This enables us to account for all the dated events in the books and to conclude that Nehemiah arrived in Jerusalem in the spring of 445 BCE and Ezra in the summer of 443 BCE.

Römer 2014

Thomas Römer, *The Origin and the Status of Evil According to the Hebrew Bible*. In: Fabienne Jourdan & Rainer Hirsch-Luipold (Hrsg.), *Die Wurzel allen Übels, Vorstellungen über die Herkunft des Bösen und Schlechten in der Philosophie und Religion des 1.–4. Jahrhunderts*. Ratio Religionis Studien 3 (Tübingen 2014), 53–66.

The Hebrew Bible has never systematized its discourse on evil. Roughly speaking, three major concepts can be distinguished: (1) the priestly concept and that of the authors who wrote the dialogues in the Book of Job, which attributes a certain form of autonomy to evil without explaining its origins; (2) the concept brought forward by the redactor of the narrative frame in the Book of Job, the author of the Book of Chronicles, and in some other texts, which all sketch a tendency towards a dualist vision even if "Satan" is never an equipollent enemy of God in the Hebrew Bible; (3) the affirmation that YHWH is the cause of evil, as expressed in the oracle in Deutero-Isaiah (45:5–7), which clearly states that YHWH created evil. The idea that YHWH is the cause of evil draws on the doctrine of retribution according to which, however, every form of evil sent by YHWH can be "logically" explained. Contrary to that, Qoheleth affirms that evil does indeed from God, but that man cannot understand the reasons for it.

These different biblical approaches laid the groundwork for attitudes and positions, which have, in different forms and different ways, accompanied the history of theology and philosophy until today.

Biologie

Loukola 2017

Olli J. Loukola, Clint J. Perry, Louie Coscos & Lars Chittka, *Bumblebees show cognitive flexibility by improving on an observed complex behavior*. science **355** (2017), 833–836.

We explored bees' behavioral flexibility in a task that required transporting a small ball to a defined location to gain a reward. Bees were pretrained to know the correct location of the ball. Subsequently, to obtain a reward, bees had to move a displaced ball to the defined location. Bees that observed demonstration of the technique from a live or model demonstrator learned the task more efficiently than did bees observing a "ghost" demonstration (ball moved via magnet) or without demonstration. Instead of copying demonstrators moving balls over long distances, observers solved the task more efficiently, using the ball positioned closest to the target, even if it was of a different color than the one previously observed. Such unprecedented cognitive flexibility hints that entirely novel behaviors could emerge relatively swiftly in species whose lifestyle demands advanced learning abilities, should relevant ecological pressures arise.

Spahn 2017

V. Spahn et al., *A nontoxic pain killer designed by modeling of pathological receptor conformations*. science **355** (2017), 966–969.

V. Spahn, G. Del Vecchio, D. Labuz, A. Rodriguez-Gaztelumendi, N. Massaly, J. Temp, V. Durmaz, P. Sabri, M. Reidelbach, H. Machelska & M. Weber, C. Stein

Indiscriminate activation of opioid receptors provides pain relief but also severe central and intestinal side effects. We hypothesized that exploiting pathological (rather than physiological) conformation dynamics of opioid receptor-ligand interactions might yield ligands without adverse actions. By computer simulations at low pH, a hallmark of injured tissue, we designed an agonist that, because of its low acid dissociation constant, selectively activates peripheral m-opioid receptors at the source of pain generation. Unlike the conventional opioid fentanyl, this agonist showed pH-sensitive binding, heterotrimeric guanine nucleotide-binding protein (G protein) subunit dissociation by fluorescence resonance energy transfer, and adenosine 3¡Ç,5¡Çmonophosphate inhibition in vitro. It produced injury-restricted analgesia in rats with different types of inflammatory pain without exhibiting respiratory depression, sedation, constipation, or addiction potential.

Biologie Anthropologie

DeCasien 2017

Alex R. DeCasien, Scott A. Williams & & James P. Higham, *Primate brain size is predicted by diet but not sociality*. Nature Ecology & Evolution **1** (2017), 112, 1–7. DOI:10.1038/s41559-017-0112.

NatEcoEvo01-a0112-Supplement1.pdf, NatEcoEvo01-a0112-Supplement2.xls

The social brain hypothesis posits that social complexity is the primary driver of primate cognitive complexity, and that social pressures ultimately led to the evolution of the large human brain. Although this idea has been supported by studies indicating positive relationships between relative brain and/or neocortex size and group size, reported effects of different social and mating systems are highly conflicting. Here, we use a much larger sample of primates, more recent phylogenies, and updated statistical techniques, to show that brain size is predicted by diet,

rather than multiple measures of sociality, after controlling for body size and phylogeny. Specifically, frugivores exhibit larger brains than folivores. Our results call into question the current emphasis on social rather than ecological explanations for the evolution of large brains in primates and evoke a range of ecological and developmental hypotheses centred on frugivory, including spatial information storage, extractive foraging and overcoming metabolic constraints.

Klima

Campbell 2017

J. E. Campbell, J. A. Berry, U. Seibt, S. J. Smith, S. A. Montzka, T. Launois, S. Belviso, L. Bopp & M. Laine, *Large historical growth in global terrestrial gross primary production*. nature **544** (2017), 84–87.

n544-0084-Supplement.pdf

Growth in terrestrial gross primary production (GPP)—the amount of carbon dioxide that is 'fixed' into organic material through the photosynthesis of land plants—may provide a negative feedback for climate change1,2. It remains uncertain, however, to what extent biogeochemical processes can suppress global GPP growth3. As a consequence, modelling estimates of terrestrial carbon storage, and of feedbacks between the carbon cycle and climate, remain poorly constrained4. Here we present a global, measurement-based estimate of GPP growth during the twentieth century that is based on long-term atmospheric carbonyl sulfide (COS) records, derived from ice-core, firn and ambient air samples5. We interpret these records using a model that simulates changes in COS concentration according to changes in its sources and sinks—including a large sink that is related to GPP. We find that the observation-based COS record is most consistent with simulations of climate and the carbon cycle that assume large GPP growth during the twentieth century (31 % ± 5 % growth; mean ± 95 % confidence interval). Although this COS analysis does not directly constrain models of future GPP growth, it does provide a global-scale benchmark for historical carbon-cycle simulations.

Yakir 2017

Dan Yakir, *Large rise in carbon uptake by land plants*. nature **544** (2017), 39–40.

A proxy for the amount of carbon dioxide taken up by plants for photosynthesis has been used to estimate historical global uptake, revealing a large increase that might partly offset the rise in atmospheric CO2 levels.

Kultur

Gärdenfors 2017

Peter Gärdenfors & Anders Högberg, *The Archaeology of Teaching and the Evolution of Homo docens*. Current Anthropology **58** (2017), 188–208.

Teaching is present in all human societies, while within other species it is very limited. Something happened during the evolution of Homo sapiens that also made us Homo docens—the teaching animal. Based on discussions of animal and hominin learning, we analyze the evolution of intentional teaching by a series of levels that require increasing capacities of mind reading and communication on the part of the teacher and the learner. The levels of teaching are (1) intentional

evaluative feedback, (2) drawing attention, (3) demonstrating, (4) communicating concepts, and (5) explaining relations between concepts. We suggest that level after level has been added during the evolution of teaching. We demonstrate how different technologies depend on increasing sophistication in the levels of cognition and communication required for teaching them. As regards the archaeological evidence for the different levels, we argue that stable transmission of the Oldowan technology requires at least teaching by demonstration and that learning the late Acheulean hand-axe technology requires at least communicating concepts. We conclude that H. docens preceded H. sapiens.

Kristiansen 2015

Kristian Kristiansen, *The Decline of the Neolithic and the Rise of Bronze Age Society*. In: Chris Fowler, Jan Harding & Daniela Hofmann (Hrsg.), *The Oxford Handbook of Neolithic Europe*. (Oxford 2015), 1–19.

This chapter explores the historical transition from the Neolithic to the Bronze Age between the fourth and the third millennia BC and highlights some major qualitative or structural differences between the two. It argues that this new social formation restructured the political economy around a new set of institutions, giving rise to more complex societies at a global level. The chapter first examines the historical conditions or forces that led to the decline of the Neolithic and the rise of the Bronze Age in prehistoric Europe by comparing seemingly similar tell societies in both epochs in the Carpathian basin before identifying the new institutions of the Bronze Age, including the regional economic division of labour. As bronze was universally adopted it implied regular long-distance trade in metal, which created a new globalized economy that did not exist during the Neolithic.

Keywords: Neolithic | Bronze Age | social organization | family | property | metallurgy | political economy | Europe | Carpathian basin | trade

Kultur Judentum

Faust 2017

Avraham Faust & Hayah Katz, *The Archaeology of Purity and Impurity, A Case-Study from Tel 'Eton, Israel*. Cambridge Archaeological Journal **27** (2017), 1–27.

The distinction between clean and unclean, often associated with bodily functions, is a common feature of human societies. Consequently, diverse groups developed different ways of maintaining separation between the realms. Despite its prominence in many ethnographies and in anthropology at large, and although the spatial expression of this separation is susceptible to archaeological enquiry, the concept of purity had received less attention by archaeologists. The completion of the excavation of a large house at Tel .Eton supplied us with detailed information on household life and practices in Iron Age Israel. The finds from this house, along with a very large archaeological dataset about Iron Age Israelite society at large and the wealth of textual data from this period, give us insights into the practices associated with purity/impurity. The article reconstructs how Iron Age Israelite society coped with the implications of impurity (mainly women during menstruation) in its daily life, how impurity was contained, and offers a reconstruction of the ritual that accompanied the change of status from impure to pure.

Mittelpaläolithikum

Biagi 2016

Paolo Biagi, Renato Nisbet, Elisabetta Starnini, Nikos Efstratiou & Ryszard Michniak, *Where Mountains and Neanderthals Meet, The Middle Palaeolithic settlement of Samarina in the Northern Pindus (Western Macedonia, Greece)*. Eurasian Prehistory **13** (2016), 3–76.

The surveys carried out since 2002 in the Northern Pindus of Western Macedonia (Greece), have led to the discovery of an impressive number of sites, lithic scatters, indspots and isolated artefacts, techno-typologically attributed to the Levallois Mousterian Middle Palaeolithic. The chipped stone artefacts are mainly distributed along the watersheds that surround the highaltitude Vlah town of Samarina up to ca. 2100 m, on the ridges of the Boghdani and Gurguliu mountains in the Smolikas massif. Apart from the aforementioned inds, outcrops rich in good quality chert have also been discovered. They are often associated with decortication areas located close to the extractive points. Important sites were found also along the southern terraces of the Samariniotikos River at some 1500 m of altitude. This paper describes the results so far achieved from the study of the landscape on which late Neanderthal groups moved, obtained knappable raw material for making tools from local sources, settled in base camps close to the river course, and practised hunting activities along the mountain open landscapes. According to the typological characteristics of the chipped stone artefacts, and the location at the top of morainic circles, the assemblages have been attributed to a recent period in the development of the Levallois Mousterian Middle Palaeolithic. The Samarina inds show that Neanderthal groups seasonally exploited the natural resources of the Pindus highland zones most probably after 70,000 BP, during a period of climatic amelioration of the OIS-3. The unique inds from the Northern Pindus chain help us understand some modes of behaviour of the Middle Palaeolithic groups within an activity radius of ca. 20 km between some 1350 and 2100 m of altitude.

Keywords: Western Macedonia | Pindus Mountains | Samarina | Levallois Mousterian Middle Palaeolithic | Chert exploitation | Lithic technology | Neanderthal hunting strategies

Krueger 2017

Kristin L. Krueger et al., *Anterior dental microwear textures show habitat-driven variability in Neandertal behavior*. Journal of Human Evolution **105** (2017), 13–23.

JHumEvo105-0013-Supplement.doc

Kristin L. Krueger, Peter S. Ungar, Debbie Guatelli-Steinberg, Jean-Jacques Hublin, Alejandro Pérez-Pérez, Erik Trinkaus & John C. Willman

The causes of Neandertal anterior tooth wear patterns, including labial rounding, labial scratches, and differential anterior-posterior wear, have been debated for decades. The most common explanation is the "stuff-and-cut" hypothesis, which describes Neandertals clamping down on a piece of meat and slicing a portion close to their lips. "Stuff-and-cut" has been accepted as a general aspect of Neandertal behavior without fully assessing its variability. This study analyzes anterior dental microwear textures across habitats, locations, and time intervals to discern possible variation in Neandertal anterior tooth-use behavior.

Forty-five Neandertals from 24 sites were analyzed, represented by high-resolution replicas of permanent anterior teeth. The labial surface was scanned for antemortem microwear using a white-light confocal profiler. The resultant 3D-point clouds, representing 204 . 276 mm for each specimen, were uploaded into

SSFA software packages for texture characterization. Statistical analyses, including MANOVAs, ANOVAs, and pairwise comparisons, were completed on ranked microwear data. Neandertal descriptive statistics were also compared to 10 bioarchaeological samples of known or inferred dietary and behavioral regimes.

The Neandertal sample varied significantly by habitat, suggesting this factor was a principal driving force for differences in Neandertal anterior tooth-use behaviors. The Neandertals from open habitats showed significantly lower anisotropy and higher textural fill volume than those inhabiting more closed, forested environments. The texture signature from the open-habitat Neandertals was most similar to that of the Ipiutak and Nunavut, who used their anterior teeth for intense clamping and grasping behaviors related to hide preparation. Those in more closed habitats were most similar to the Arikara, who did not participate in non-dietary behaviors. These Neandertal individuals had a broad range of texture values consistent with non-dietary and dietary behaviors, suggesting they varied more in anterior tooth-use behaviors and exploited a wider variety of plant and animal resources than did those from open habitats.

Keywords: Paleobiology | Dental wear | Non-dietary anterior tooth-use | "Stuff-and-cut"

Politik

Shi 2017

Feng Shi, Yongren Shi, Fedor A. Dokshin, James A. Evans & Michael W. Macy, *Millions of online book co-purchases reveal partisan differences in the consumption of science*. Nature Human Behaviour **1** (2017), 79, 1–9.

NatHumBeh01-a0079-Supplement1.pdf, NatHumBeh01-a0079-Supplement2.txt, NatHumBeh01-a0079-Supplement3.txt, NatHumBeh01-a0079-Supplement4.xlsx, NatHumBeh01-a0079-Supplement5.xlsx

Passionate disagreements about climate change, stem cell research and evolution raise concerns that science has become a new battlefield in the culture wars. We used data derived from millions of online co-purchases as a behavioural indicator for whether shared interest in science bridges political differences or selective attention reinforces existing divisions. Findings reveal partisan preferences both within and across scientific disciplines. Across fields, customers for liberal or 'blue' political books prefer basic science (for example, physics, astronomy and zoology), whereas conservative or 'red' customers prefer applied and commercial science (for example, criminology, medicine and geophysics). Within disciplines, 'red' books tend to be co-purchased with a narrower subset of science books on the periphery of the discipline. We conclude that the political left and right share an interest in science in general, but not science in particular. This underscores the need for research into remedies that can attenuate selective exposure to 'convenient truth', renew the capacity for science to inform political debate and temper partisan passions.

Religion

Gez 2017

Yonatan N. Gez, Yvan Droz, Edio Soares & Jeanne Rey, *From Converts to Itinerants, Religious Butinage as Dynamic Identity*. Current Anthropology **58** (2017), 141–159.

Anthropologists and sociologists studying religious practices have to navigate through terminological preconceptions that assume religious identity to be essentially stable, only interrupted at times by dramatic instances of conversion. In this article, we introduce a metaphor as a way of thinking about religious phenomena outside of an exclusivist theological model and as self-fashioned, flexible, mobile, and composite practice. Using an allusion to the behavior of pollinizing insects, we speak of religious butinage as a way of stimulating the discussion regarding such dynamic religious practice, proposing that religious mobility is perhaps more common than some are inclined to think. By presenting the case in favor of this metaphor, we invite a fresh perspective on religious practices and religious identity.

Story or Book

Pagel 2017

Mark Pagel, *Points, grunts and speaks*. nature **543** (2017), 620–621.

Mark Pagel weighs up a study claiming that the origins of human language are rooted in gesture.

The Truth about Language: What It Is and Where It Came From. Michael C. Corballis. University of Chicago Press: 2017.

Corballis counters that primate vocalizations, unlike gestures, seem barely under voluntary control. He contends that they emerge like nervous tics, more closely connected to expression of emotion than to a deliberate exchange of information.

Whatever the truth, Corballis writes with an academic's attention to detail in witty, self-deprecating prose. The combination of style and argument make The Truth about Language the best work yet on the gestural theory of language.

Zündung

Kim 2017

Keunsoo Kim, Junghwan Kim, Seungmook Oh, Changup Kim & Yonggyu Lee, *Evaluation of injection and ignition schemes for the ultra-lean combustion direct-injection LPG engine to control particulate emissions*. Applied Energy **194** (2017), 123–135.

Highlights:

- Particulate emission characteristics of ultra-lean LPG combustion were analyzed.
- Various ultra-lean LPG combustion strategies were analyzed and compared.
- Lean strategies reduced NOx and CO along with increasing 18 % thermal efficiency.
- Multi-charge ignition lowered particle concentration; increased the particle number.

The high level of particulate emission in ultra-lean combustion direct injection engine was obstacles for real application and satisfying the further upcoming regulation. The use of LPG (liquefied petroleum gas) in lean direct injection engines has the potential to reduce carbon-related emissions owing to its simple structure, and it can become an easily stratified mixture because of its higher vapor pressure. In this respect, the effects of the injection and ignition schemes on combustion and emission characteristics, including particle emission of ultra-lean combustion through LPG, were investigated. Four different injections schemes in order for forming stratified mixture and two ignition schemes (single charge ignition and multi-charge ignition) were employed to achieve simultaneous harmful emissions and fuel consumption reduction.

The experimental results reveal that the fully stratified injection strategies indicate an improvement of approximately 18 % in thermal efficiency, but combustion fluctuation was observed owing to stratification. Moreover, simultaneous reductions in the NOX (Nitric Oxides) and CO (Carbon monoxide) emissions were observed (when compared to homogeneous stoichiometric combustion) while increasing the particulate matter emission. In order to stabilize the combustion and reduce the level of soot, a multicharge ignition was introduced to the selected injection strategies (LBM1 and LBM2). Multi-charge ignition successfully reduces particulate mass by about 10 % and secures the combustion stability slightly; however, it increases the particle number concentration.

Keywords: Liquefied petroleum gas (LPG) | Lean-burn | Direct-injection | Spark-ignition | Emission characteristics | Particulate matter (PM) | Multi-charge ignition