

## References

### Aktuell

#### FATTORINI 2017

Simone Fattorini, Rosalina Gabriel, Ana M. Arroz, Isabel R. Amorim, Paulo A. V. Borges & Philip Cafaro, *Children's preferences for less diverse greenspaces do not disprove biophilia*. [PNAS 114 \(2017\), E7215](#).

Social criteria, including accessibility, penetrability, safety, privacy, and comfort, are more positively evaluated than wilderness (6). Thus, the preference of children for their gardens or tame yards instead of more natural places (1) is not evidence against the biophilia hypothesis, but may be just a reflection of their own culture.

Children's preferences for tamer, less biodiverse greenspaces could be, and likely are, driven by cultural conditioning. Given the urgency to conserve biodiversity, further research is warranted to encourage children's innate biophilia and to help develop it in a way that leads them to appreciate the natural world.

#### HAND 2017

Kathryn L. Hand, Claire Freeman, Philip J. Seddon, Mariano R. Recio & Yolanda van Heezik, *Children's selected avoidance of wild greenspace is driven by more than cultural factors, Reply to Fattorini et al.* [PNAS 114 \(2017\), E7216–E7217](#).

While we conclude that children's exhibited behavior does not conform to the biophilia hypothesis, this does not mean children are not biophilic, but rather that their ability to act in this way has been curtailed. The many possible reasons for this, including cultural influences, are important topics for further research. We agree with Fattorini et al. (1) that helping children to overcome these influences and improving opportunities to interact with the biodiversity present in urban areas is important to support their well-being and develop a conservation ethic.

#### MARSH 2017

Nina Marsh, Dirk Scheele, Justin S. Feinstein, Holger Gerhardt, Sabrina Strang, Wolfgang Maier & René Hurlemann, *Oxytocin-enforced norm compliance reduces xenophobic outgroup rejection*. [PNAS 114 \(2017\), 9314–9319](#).

Never before have individuals had to adapt to social environments defined by such magnitudes of ethnic diversity and cultural differentiation. However, neurobiological evidence informing about strategies to reduce xenophobic sentiment and foster altruistic cooperation with outsiders is scarce. In a series of experiments settled in the context of the current refugee crisis, we tested the propensity of 183 Caucasian participants to make donations to people in need, half of whom were refugees (outgroup) and half of whom were natives (ingroup). Participants scoring low on xenophobic attitudes exhibited an altruistic preference for the outgroup, which further increased after nasal delivery of the neuropeptide oxytocin. In contrast, participants with higher levels of xenophobia generally failed to exhibit enhanced altruism toward the outgroup. This tendency was only countered by pairing oxytocin with peer-derived altruistic norms, resulting in a 74% increase

in refugee-directed donations. Collectively, these findings reveal the underlying sociobiological conditions associated with outgroup-directed altruism by showing that charitable social cues cooccurring with enhanced activity of the oxytocin system reduce the effects of xenophobia by facilitating prosocial behavior toward refugees.

**Keywords:** altruism | ingroup | outgroup | oxytocin | refugees

**Significance:** In the midst of rapid globalization, the peaceful coexistence of cultures requires a deeper understanding of the forces that compel prosocial behavior and thwart xenophobia. Yet, the conditions promoting such outgroup-directed altruism have not been determined. Here we report the results of a double-blind, placebo-controlled experiment showing that enhanced activity of the oxytocin system paired with charitable social cues can help counter the effects of xenophobia by fostering altruism toward refugees. These findings suggest that the combination of oxytocin and peer-derived altruistic norms reduces outgroup rejection even in the most selfish and xenophobic individuals, and thereby would be expected to increase the ease by which people adapt to rapidly changing social ecosystems.

ZHAO 2017

Chuang Zhao et al., *Temperature increase reduces global yields of major crops in four independent estimates*. [PNAS 114 \(2017\), 9326–9331](#).

Chuang Zhao, Bing Liu, Shilong Piao, Xuhui Wang, David B. Lobell, Yao Huang, Mengtian Huang, Yitong Yao, Simona Bassu, Philippe Ciais, Jean-Louis Durand, Joshua Elliott, Frank Ewert, Ivan A. Janssens, Tao Li, Erda Lin, Qiang Liu, Pierre Martre, Christoph Müller, Shushi Peng, Josep Peñuelas, Alex C. Ruane, Daniel Wallach, Tao Wang, Donghai Wu, Zhuo Liu, Yan Zhu, Zaichun Zhu & Senthold Asseng

Wheat, rice, maize, and soybean provide two-thirds of human caloric intake. Assessing the impact of global temperature increase on production of these crops is therefore critical to maintaining global food supply, but different studies have yielded different results. Here, we investigated the impacts of temperature on yields of the four crops by compiling extensive published results from four analytical methods: global grid-based and local point-based models, statistical regressions, and field-warming experiments. Results from the different methods consistently showed negative temperature impacts on crop yield at the global scale, generally underpinned by similar impacts at country and site scales. Without CO<sub>2</sub> fertilization, effective adaptation, and genetic improvement, each degree-Celsius increase in global mean temperature would, on average, reduce global yields of wheat by 6.0%, rice by 3.2%, maize by 7.4%, and soybean by 3.1%. Results are highly heterogeneous across crops and geographical areas, with some positive impact estimates. Multimethod analyses improved the confidence in assessments of future climate impacts on global major crops and suggest crop- and regionspecific adaptation strategies to ensure food security for an increasing world population.

**Keywords:** climate change impact | global food security | major food crops | temperature increase | yield

**Significance:** Agricultural production is vulnerable to climate change. Understanding climate change, especially the temperature impacts, is critical if policymakers, agriculturalists, and crop breeders are to ensure global food security. Our study, by compiling extensive published results from four analytical methods, shows that independent methods consistently estimated negative temperature impacts on yields of four major crops at the global scale, generally underpinned by similar impacts at country and site scales. Multimethod analyses improved the confidence in assessments of future climate impacts on global major crops, with im-

portant implications for developing crop- and region-specific adaptation strategies to ensure future food supply of an increasing world population.

## Amerika

WADE 2017

Lizzie Wade, *On the Trail of Ancient Mariners*. *science* **357** (2017), 542–545.

Most archaeologists think the first Americans arrived by boat. Now, they're beginning to prove it.

Most archaeologists now think people arrived in the Americas by boat before 14,000 years ago and hopped down the Pacific coast. A growing list of ancient coastal sites supports the idea.

## Archäologie

PETER-RÖCHER 2006

Heidi Peter-Röcher, *Gewalt und Krieg im prähistorischen Europa, Beiträge zur Konfliktforschung auf der Grundlage archäologischer, anthropologischer und ethnologischer Quellen*. Universitätsforschungen zur Prähistorischen Archäologie 143 (Bonn 2007). Habilitationsschrift, FU Berlin.

Gewalt stand dem Menschen immer zur Verfügung, aber er nutzte diese Option nicht immer in gleicher Weise aus, und es war nicht erst der Staat, der der Gewalt Fesseln anlegte oder dies zumindest versuchte. Es waren die gesellschaftlichen Strukturen mit ihren vielfältig gestalteten Normen, mittels derer die Gewalt im Zaum gehalten wurde, was offensichtlich mit zunehmender sozialer Hierarchisierung immer weniger gut gelang. Der Staat mag die Gewalt monopolisiert, sie mit unterschiedlichem Erfolg aus den Händen Einzelner genommen und so zwar nicht die Gewaltlosigkeit, aber doch immerhin den Frieden im Inneren befördert haben; vor allem hat er die Gewalt aber für seine Zwecke eingesetzt und in Form von Kriegen in zuvor nicht erreichter Intensität nach außen getragen.

Dem Frieden wurde in der vorliegenden Studie zwar kaum Platz gegeben, er füllt jedoch einen Teil der Räume aus, die nicht oder nur sporadisch auftauchen, und diese Räume waren groß und bestanden lange, mit offenbar abnehmender Tendenz, je mehr wir uns der Gegenwart nähern. Bei der Suche nach Lösungsmöglichkeiten für die Probleme der modernen Welt ist ein Blick auf die Vergangenheit zweifellos sinnvoll und nützlich – das beruhigende Gefühl, früher sei alles noch schlimmer gewesen, will sich dabei aber nicht so recht einstellen, und die Vorstellung, daß die Gewalt in der Natur des Menschen liegt, dürfte zwar zutreffen, hilft aber nicht weiter, denn der Mensch hat im Lauf der Geschichte zahllose Wege gefunden, seine Natur in kulturell gezähmte Bahnen zu lenken. Wenn dies heute immer weniger gut zu gelingen scheint, so liegt dies weniger in der menschlichen Natur als in seinen Kulturen und sozialen Strukturen begründet, und nur in diesem Rahmen können Lösungen gefunden werden.

## Bibel

BEN-SHLOMO 2017

David Ben-Shlomo, *Hebron, Still Jewish in Second Temple Times*. [Biblical Archaeology Review 43](#) (2017), v, 32–39, 64.

[A]ccording to petrography (a microscopic method sourcing the vessel's clay according to the minerals found in it), at Hebron all of the amphorae from the pit, which resemble imports, were made *locally*! It seems likely that these vessels contained locally produced, kosher wine for Jews—apparently imitating fashionable imported wines of the day.

Our new archaeological finds clearly show that Hebron was a Jewish town during the entire Second Temple period—and possibly slightly later.

CHAPMAN 2017

Rupert Chapman & Liat Naeh, *Samaria—Capital of Israel, The Samaria Ivories—Phoenician or Israelite?* [Biblical Archaeology Review 43](#) (2017), v, 24–30, 63, 10–11.

Because many, although not all, of the Samaritan ivories were burnt, and because a large part of the ivories were fragmentary, it was assumed by the excavators (and by everyone since), that their condition and deposition were a result of the equally assumed Assyrian destruction; however, as we have already seen, there was no Assyrian destruction. The startling discovery that emerged from Tappy's analysis of the stratigraphic data concerning their indspot was that they came not from Iron Age deposits, but from Late Hellenistic ones. These ivories had been intentionally deposited together in an area that was, curiously, nowhere near the palace. It seems that at some point between the Assyrian conquest in 721 B.C.E. and the Late Hellenistic period, the ivories had been moved from the palace to a storeroom in an ancillary building, presumably either because they had begun to deteriorate from age or simply because they were no longer fashionable. There they remained until the site was remodeled in the Late Hellenistic period. When Antiochus IV Epiphanes constructed the fortress and burnt the ancient furniture, he deposited the remains in a hole—where archaeologists later discovered them.

HUNDLEY 2017

Michael B. Hundley, *What Is the Golden Calf?* [Catholic Biblical Quarterly 79](#) (2017), 559–579.

The golden calf episode in Exodus is both popular and perplexing. While it has a shared ancient Near Eastern heritage of understanding divine presence, it chooses to undermine that heritage to promote its particular agenda. This study clarifies the text by situating it more firmly in its ancient Near Eastern context and by addressing the biblical adaptations that emerge when we address each of the chapter's distinct voices. I also consider the importance of perspective—what each character sees and how that vision affects the character's viewpoint—and the importance of divine visibility both in Exodus 32 and in the larger non-Priestly narrative.

Keywords: golden calf | idol | divine presence | cult statue

MAZAR 2014

Amihai Mazar, *Archaeology and the Bible, Reflections on Historical Memory in the Deuteronomistic History*. In: CHRISTL M. MAIER (Hrsg.), *Congress Volume Munich 2013, 21st Congress, International Organization for the Study of the Old Testament (IOSOT), Munich*,

*Germany, August 2013. Vetus Testamentum Supplements 163 (Leiden 2014), 347–369.*

Archaeology can provide evidence for specific socio-economic and political situations, for certain sites and events related to the thirteenth to tenth centuries b.c.e. and echoed in the Dtr narratives. This information could not have been invented by the authors and thus reflects old memories preserved during several centuries. This evidence should be taken into account when reconstructing the long path that such memories travelled, from oral transmission, written archives, monumental inscriptions and pre-Dtr texts, until they were reworked and embedded in the Dtr literature.

The continuous debate concerning the evaluation of the United Monarchy as an historical entity cannot be resolved unequivocally by archaeology due to the current disagreements among archaeologists regarding the interpretation of the evidence. In my view, when taking into account the combined evidence presented above, as well as in previous papers, we cannot simply deny the existence of such an entity. How to define and explain this state in the tenth century b.c.e. is a matter of debate. In previous papers, I explained David's kingdom as a tribal state that emerged at a time of political vacuum in most of the southern Levant, caused by the great weakness of the earlier Canaanite population and the increase in the Israelite population in the highlands. This background, combined with personal qualities and a small but effective military force, may have enabled David to create a substantial political and military power, which may have included large parts of the country. Solomon is even more enigmatic due to the literary-legendary nature of the texts relating to him. Historical evaluation of his state depends very much on the archaeological evaluations of the finds at Jerusalem, Hazor, Gezer, and Megiddo and several other sites, of settlement density, urbanization, literacy and certain other issues discussed in previous papers. Shoshenq's raid to the region of Jerusalem alludes to the importance of the Jerusalem polity at this time.

Though the evaluation of Saul, David, and Solomon as historical figures will no doubt continue to be a subject of debate, the weight of evidence brought above and in earlier papers allows, in my view, to see kernels of historical reality in these literary narratives. Without such reality, I doubt whether the detailed biographies of these biblical figures and the memories related to them would have played such an important role in the Dtr literature.

## Klima

### GUTJAHR 2017

Marcus Gutjahr et al., *Very large release of mostly volcanic carbon during the Palaeocene–Eocene Thermal Maximum. nature 548 (2017), 573–577.*

n548-0573-Supplement1.pdf, n548-0573-Supplement2.xlsx, n548-0573-Supplement3.xlsx

Marcus Gutjahr, Andy Ridgwell, Philip F. Sexton, Eleni Anagnostou, Paul N. Pearson, Heiko Pälike, Richard D. Norris, Ellen Thomas & Gavin L. Foster

The Palaeocene–Eocene Thermal Maximum<sup>1,2</sup> (PETM) was a global warming event that occurred about 56 million years ago, and is commonly thought to have been driven primarily by the destabilization of carbon from surface sedimentary reservoirs such as methane hydrates. However, it remains controversial whether such reservoirs were indeed the source of the carbon that drove the warming. Resolving this issue is key to understanding the proximal cause of the warming, and to quantifying the roles of triggers versus feedbacks. Here we present boron

isotope data—a proxy for seawater pH—that show that the ocean surface pH was persistently low during the PETM. We combine our pH data with a paired carbon isotope record in an Earth system model in order to reconstruct the unfolding carbon-cycle dynamics during the event. We find strong evidence for a much larger (more than 10,000 petagrams)—and, on average, isotopically heavier—carbon source than considered previously. This leads us to identify volcanism associated with the North Atlantic Igneous Province<sup>10,11</sup>, rather than carbon from a surface reservoir, as the main driver of the PETM. This finding implies that climate-driven amplification of organic carbon feedbacks probably played only a minor part in driving the event. However, we find that enhanced burial of organic matter seems to have been important in eventually sequestering the released carbon and accelerating the recovery of the Earth system<sup>12</sup>.

#### MEISSNER 2017

Katrin J. Meissner & Timothy J. Bralower, *Volcanism caused ancient global warming*. *nature* **548** (2017), 531–533.

A study confirms that volcanism set off one of Earth’s fastest global-warming events. But the release of greenhouse gases was slow enough for negative feedbacks to mitigate impacts such as ocean acidification.

## Kupfer

#### HAUSTEIN 2011

Mike Haustein, *Isotopengeochemische Untersuchungen zu möglichen Zinnquellen der Bronzezeit Mitteleuropas*. Forschungsberichte des Landesmuseums für Vorgeschichte Halle 3 (Halle 2013). Habilitationsschrift, Universität Tübingen.

## Mathematik Anthropologie

#### PERRY 2017

Gretchen Perry & Martin Daly, *A model explaining the matrilineal bias in alloparental investment*. *PNAS* **114** (2017), 9290–9295.

Maternal grandmothers invest more in childcare than paternal grandmothers. This bias is large where the expression of preferences is unconstrained by residential and lineage norms, and is detectable even where marriage removes women from their natal families. We maintain that the standard evolutionary explanation, paternity uncertainty, is incomplete, and present an expanded model incorporating effects of alloparents on the mother as well as on her children. Alloparenting lightens a mother’s load and increases her residual nepotistic value: her expected fitness from later investments in personal reproduction and in her natal relatives. The mother’s mother derives fitness from all such investments, whereas her mother-in-law gains only from further investment in children sired by her son, and thus has less incentive to assist the mother even if paternity is certain. This logic extends to kin other than grandmothers. We generate several hypotheses for future research.

**Keywords:** alloparent | matrilineal bias | grandmother | kinship laterality | family relations

**Significance:** Parents raising children rely heavily on related helpers (“alloparents”), who are mainly the mother’s kin rather than the father’s. This “matrilineal bias” is cross-culturally ubiquitous and requires explanation. The dominant

evolutionary view is that it serves as a defense against investing resources in unrelated children whose paternity has been misattributed. The evolutionary model proposed here includes paternity uncertainty as one component of the explanation, but adds additional elements derived from the insight that alloparenting constitutes an investment in the mother as well as in her children, raising her subsequent capacity to invest in other relatives. This model lays a foundation for future research on how the receipt of alloparental help changes the lives of mothers.

#### WHITEHOUSE 2017

Harvey Whitehouse et al., *The evolution of extreme cooperation via shared dysphoric experiences*. [Scientific Reports 7 \(2017\), 44292](#). DOI:10.1038/srep44292.

[SciRep07-44292-Supplement.pdf](#)

Harvey Whitehouse, Jonathan Jong, Michael D. Buhrmester, Ángel Gómez, Brock Bastian, Christopher M. Kavanagh, Martha Newson, Miriam Matthews, Jonathan A. Lanman, Ryan McKay & Sergey Gavrillets

Willingness to lay down one's life for a group of non-kin, well documented historically and ethnographically, represents an evolutionary puzzle. Building on research in social psychology, we develop a mathematical model showing how conditioning cooperation on previous shared experience can allow individually costly pro-group behavior to evolve. The model generates a series of predictions that we then test empirically in a range of special sample populations (including military veterans, college fraternity/sorority members, football fans, martial arts practitioners, and twins). Our empirical results show that sharing painful experiences produces "identity fusion" – a visceral sense of oneness – which in turn can motivate self-sacrifice, including willingness to fight and die for the group. Practically, our account of how shared dysphoric experiences produce identity fusion helps us better understand such pressing social issues as suicide terrorism, holy wars, sectarian violence, gang-related violence, and other forms of intergroup conflict.

## Mittelpaläolithikum

#### SHIMELMITZ 2017

Ron Shimelmitz & Steven L. Kuhn, *The toolkit in the core, There is more to Levallois production than predetermination*. [Quaternary International \(2017\), preprint, 1–11](#). DOI:10.1016/j.quaint.2017.08.011.

Levallois technology has been used as both a chronological marker and a sign of cognitive evolution in hominins. The Levallois method is typically described as a specialized form of lithic manufacture, aimed at making products of predetermined shape. Analyses of Levallois technology tend to focus on the phenomenon of predetermination in the manufacture of specific products such as Levallois flakes, blades or points. Although it is widely recognized that some forms of recurrent Levallois technology actually produce diverse sorts of product, this feature is seldom emphasized or explored. We argue that despite similarities in how flaking is organized volumetrically, all varieties of Levallois are not simply equivalent means of creating blanks of predetermined form. In this paper we focus on Levallois production in the early Middle Paleolithic assemblages from Unit IX of Tabun Cave to provide an alternative perspective on some forms of Levallois production. The method used at Tabun is both flexible and efficient, yielding both large numbers of blanks and a range of products while reducing the waste of raw material. In these assemblages blades, flakes, Levallois points, and a variety of other products, were produced through systematic exploitation of different parts of the core's surface (or a series

of surfaces). All types of products were transformed for use as tools, though perhaps to serve different ends. The choice to manufacture a range of products out of a single core highlights differences between the preferential and recurrent forms of Levallois technology. They represent fundamentally different approaches to lithic resource management.

Keywords: Levallois technology | Recurrent | Tabun Cave | Middle Paleolithic

## Politik

### HAND 2017

Kathryn L. Hand, Claire Freeman, Philip J. Seddon, Mariano R. Recio, Aviva Stein & Yolanda van Heezik, *The importance of urban gardens in supporting children's biophilia*. *PNAS* **114** (2017), 274–279. [pnas114-0274-Comment1.pdf](#), [pnas114-0274-Reply1.pdf](#)

Exposure to and connection with nature is increasingly recognized as providing significant well-being benefits for adults and children. Increasing numbers of children growing up in urban areas need access to nature to experience these benefits and develop a nature connection. Under the biophilia hypothesis, children should innately affiliate to nature. We investigated children's independent selection of spaces in their neighborhoods in relation to the biodiversity values of those spaces, in three New Zealand cities, using resource-selection analysis. Children did not preferentially use the more biodiverse areas in their neighborhoods. Private gardens and yards were the most preferred space, with the quality of these spaces the most important factor defining children's exposure to nature. Children's reliance on gardens and yards for nature experiences raises concerns for their development of a nature connection, given disparities in biodiversity values of private gardens in relation to socioeconomic status, and the decline in sizes of private gardens in newer urban developments.

Keywords: biophilia | children | urban biodiversity | resource selection | home range

Significance: Nature exposure is an important determinant of human mental and physical well-being, but rapid urbanization means that accessing natural areas is increasingly challenging. Children in particular are thought to show a deep affective affiliation with life (biophilia), and health disorders, such as attention-deficit hyperactivity disorder, stress, obesity, and depression, are attributed to lack of interaction with wild nature, termed "nature-deficit disorder." We tested biophilia in children by quantitatively evaluating the availability and use of biodiverse spaces, and found no evidence of preference for biodiverse or wild areas, even where children had access to highly biodiverse areas. Because of constrained movements, children's exposure to nature occurred mostly in private gardens, which are disappearing with densification and ongoing loss of private greenspace.