

## References

### Aktuell

BARRAS 2019

Colin Barras, *Does fossil site record dino-killing impact?* [science 364 \(2019\), 10–11.](#)

Astonishment, skepticism greet claim that North Dakota site captures impact day.

DePalma and his colleagues say the killing is captured in forensic detail in the 1.3-meter-thick Tanis deposit, which they say formed in just a few hours, beginning perhaps 13 minutes after impact. Although fish fossils are normally deposited horizontally, at Tanis, fish carcasses and tree trunks are preserved haphazardly, some in near vertical orientations, suggesting they were caught up in a large volume of mud and sand that was dumped nearly instantaneously. The mud and sand are dotted with glassy spherules—many caught in the gills of the fish—isotopically dated to 65.8 million years ago. They presumably formed from droplets of molten rock launched into the atmosphere at the impact site, which cooled and solidified as they plummeted back to Earth. A 2-centimeter-thick layer rich in telltale iridium caps the deposit.

BJÖRNMALM 2019

Mattias Björnmalm, *Taking a break is hard work, too.* [science 364 \(2019\), 98.](#)

My lab bench was strewn with tubes and pipettes—remnants of an experiment that had refused to work for several weeks. I was slouched against the bench, deep in despair. It was a far cry from how I had felt just a few months earlier, when I started my master’s research project. At that point, I thought I had cracked the code to academic success. After years of excelling in the classroom thanks to intensive studying, the idea that I would be rewarded if I worked hard enough was deeply rooted in me. So I spent long hours in the lab, steadily filled pages in my notebook, and was praised for my diligence. When my experiments didn’t produce the exciting Results they were supposed to, I thought I just needed to work more.

HOLM 2019

Elizabeth A. Holm, *In defense of the black box.* [science 364 \(2019\), 26–27.](#)

MACLEOD 2019

Alexander J. Macleod, Adam Noble & Dino A. Jaroszynski, *Cherenkov Radiation from the Quantum Vacuum.* [Physical Review Letters 122 \(2019\), 161601. DOI:10.1103/PhysRevLett.122.161601.](#)

[PhysRevLett122-161601-Supplement.pdf](#)

A charged particle moving through a medium emits Cherenkov radiation when its velocity exceeds the phase velocity of light in that medium. Under the influence of a strong electromagnetic field, quantum fluctuations can become polarized, imbuing the vacuum with an effective anisotropic refractive index and allowing the possibility of Cherenkov radiation from the quantum vacuum. We analyze the

properties of this vacuum Cherenkov radiation in strong laser pulses and the magnetic field around a pulsar, finding regimes in which it is the dominant radiation mechanism. This radiation process may be relevant to the excess signals of high energy photons in astrophysical observations.

## Anthropologie

### GIBBONS 2019

Ann Gibbons, *Moderns said to mate with late-surviving Denisovans. science* **364** (2019), 12–13.

Genomes from New Guineans suggest mixing, perhaps as recently as 15,000 years ago.

When the team members analyzed the DNA with three statistical methods, they found that the two additional sources of Denisovan DNA came from populations so distantly related that they had diverged more than 283,000 years ago. The D2 population is even more distant from the Siberian Denisovans, having split off roughly 363,000 years ago. That makes those two populations almost as distantly related to each other as they are to Neanderthals, Cox says. “We used to think of Denisovans as a single group,” says Cox, who suggests as an aside that the D2 group might even need a new name.

The D1 DNA isn’t seen in people outside New Guinea, and it’s found on large chunks of chromosome that haven’t been mixed over time, suggesting it entered the modern human genome recently—about 30,000 years ago, and perhaps just 15,000 years ago. Cox’s team suggests a group of Denisovans survived in the remote mountains or islands of New Guinea and mated with modern humans.

### REYNOLDS 2019

Austin W. Reynolds et al., *Comparing signals of natural selection between three Indigenous North American populations. PNAS* **116** (2019), 9312–9317.

[pnas116-09312-Supplement1.pdf](#), [pnas116-09312-Supplement2.xlsx](#)

Austin W. Reynolds, Jaime Mata-Míguez, Aida Miró-Herrans, Marcus Briggs-Cloud, Ana Sylestine, Francisco Barajas-Olmos, Humberto Garcia-Ortiz, Margarita Rzhetskaya, Lorena Orozco, Jennifer A. Raff, M. Geoffrey Hayes & Deborah A. Bolnick While many studies have highlighted human adaptations to diverse environments worldwide, genomic studies of natural selection in Indigenous populations in the Americas have been absent from this literature until very recently. Since humans first entered the Americas some 20,000 years ago, they have settled in many new environments across the continent. This diversity of environments has placed variable selective pressures on the populations living in each region, but the effects of these pressures have not been extensively studied to date. To help fill this gap, we collected genome-wide data from three Indigenous North American populations from different geographic regions of the continent (Alaska, southeastern United States, and central Mexico). We identified signals of natural selection in each population and compared signals across populations to explore the differences in selective pressures among the three regions sampled. We find evidence of adaptation to cold and high-latitude environments in Alaska, while in the southeastern United States and central Mexico, pathogenic environments seem to have created important selective pressures. This study lays the foundation for additional functional and phenotypic work on possible adaptations to varied environments during the history of population diversification in the Americas.

Keywords: population genomics | natural selection | Native Americans | Alaskan Natives | human evolutionary genetics

Significance: Recent studies have shown that humans have adapted to many different environments around the world. However, few studies have centered on Indigenous groups in the Americas. We present a comparative analysis of genetic adaptations in humans across North America using genome-wide scans for signals of natural selection in three populations inhabiting vastly different environments. We find evidence for adaptation to cold and high latitudes in an Alaskan population, whereas infectious disease was a strong selective pressure in the southeastern United States and central Mexico. Because there are few shared signals of selection between populations, these sweeps likely occurred after population differentiation in the Americas. This study fills an important gap in our knowledge of genetic adaptations in humans.

## Bibel

FINKELSTEIN 2019

Israel Finkelstein, Nadav Na'aman & Thomas Römer, *Restoring Line 31 in the Mesha Stele, The 'House of David' or Biblical Balak?* [Tel Aviv: Archaeology 46 \(2019\), 3–11.](#)

After studying new photographs of the Mesha Stele and the squeeze of the stele prepared before the stone was broken, we dismiss Lemaire's proposal to read **בחדוד** ('House of David') on Line 31. It is now clear that there are three consonants in the name of the monarch mentioned there, and that the first is a beth. We cautiously propose that the name on Line 31 be read as Balak, the king of Moab referred to in the Balaam story in Numbers 22–24.

Keywords: Mesha Stele | Mesha | Moab | Beth David | Balak | Horonaim | Horon

NGO 2019

Robin Ngo, *Scholars Identify Biblical King Balak on the Mesha Stele.* [Bible History Daily 2019, May 3.](#)

A reference to King Balak in this stele seems anachronistic for Mesha's first-person narration of his experience, since the Hebrew Bible associates him with Israel's journeys before the settlement period, centuries earlier than Mesha and the Omride dynasty," Mykytiuk said in an email to Bible History Daily. "Could there not have been a later Balak, perhaps from the same location, who is not mentioned in the Bible?"

## Energie

MERA 2019

Zamir Mera, Natalia Fonseca, José-María López & Jesús Casanova, *Analysis of the high instantaneous NOx emissions from Euro 6 diesel passenger cars under real driving conditions.* [Applied Energy 242 \(2019\), 1074–1089.](#)

Highlights:

- High instantaneous NOx represent a small percentage of observations or driving time.
- High instantaneous NOx represent a large percentage of real-world NOx emissions.

- Constraint of high instantaneous NOx significantly reduce NOx emission factors.
- Relationships between high instantaneous NOx and several parameters were identified.
- Conditions with more probabilities of high instantaneous NOx were identified.

In real-world driving, most Euro 5 and 6 diesel passenger cars exceed the nitrogen oxides (NOx) emission limits of type approval procedure. The emission factors of the fleet of Euro 6 vehicles show high variability, irrespective of the NOx control technology. This comprehensive study focused on the events of high instantaneous NOx emissions produced under real driving, to assess their impact on emission factors. Additionally, the relationships of these events with different parameters measured using portable emissions measurement system (PEMS) were determined. Three Euro 6b diesel passenger cars with exhaust gas recirculation (EGR), lean-burn NOx trap (LNT) and selective catalytic reduction (SCR) were tested based on the real driving emissions (RDE) regulation.

The results show that high instantaneous NOx emissions represent a large amount of total NOx emissions, although they are produced in a small percentage of driving time. A theoretical constraint of these high NOx emissions could reduce emission factors by 30–82%. The emission of high instantaneous NOx emissions are related to characteristic speed modes of urban, rural and motorway sections, and are primarily produced in a narrow engine speed range of approximately 700 rpm. In general, the probability of producing high

**Keywords:** NOx | Real driving emissions (RDE) test | Portable emissions measurement system | (PEMS) | Diesel exhaust after-treatment | Passenger cars

## WANG 2019

Chenyao Wang, Fujun Zhang, Enhua Wang., Chuncun Yu, Hongli Gao, Bolan Liu, Zhenfeng Zhao & Changlu Zhao, *Experimental study on knock suppression of spark-ignition engine fuelled with kerosene via water injection*. [Applied Energy](#) **242** (2019), 248–259.

### Highlights:

- Knock suppression of a spark-ignition engine with kerosene is tested.
- Effect of water injection is evaluated experimentally and theoretically.
- Water injection can suppress the knock and improve the output power.
- Too much water injection has a negative effect on the work output.

The four-stroke spark-ignition (SI) internal combustion engine has good fuel economy and high power/weight ratio, making it very suitable for small aircraft. Normally, four-stroke aviation SI engines are fuelled with gasoline. Using kerosene can improve the system safety; However, a four-stroke SI engine fuelled with kerosene suffers from a small indicated mean effective pressure (IMEP) because of the knock limit of kerosene. In this study, water injection is investigated as a method of extending the knock limitation and improving IMEP of a four-stroke SI engine fuelled with kerosene. First, a Rotax 914 engine is retrofitted. Two port-fuel-injection systems supplied with kerosene and water are developed. Then, the combustion characteristics with water injection are studied. The effects of water injection on the in-cylinder pressure and heat-release rate are analysed. Additionally, the extent of knock suppression due to water injection under various engine speeds is evaluated. The results indicate that the knock limit of the four-stroke SI engine with kerosene is extended significantly via water injection. The measured IMEP is improved by 25–28% under different engine speeds. Thus, the requirement for ordinary cruise operation is satisfied. Furthermore, the security is enhanced with water injection.

**Keywords:** Aviation piston engine | Kerosene | Knock suppression | Water injection | Experimental study

## Grabung

MAGNESS 2019

Jodi Magness, Shua Kisilevitz, Matthew Grey, Dennis Mizzi, Karen Britt & Ra'anana Boustana, *Inside the Huqoq Synagogue*. [Biblical Archaeology Review](#) **45** (2019), iii, 24–38.

## Isotope

PRICE 2019

T. Douglas Price, Michael J. Spicuzza, Ian J. Orland & John W. Valley, *Instrumental investigation of oxygen isotopes in human dental enamel from the Bronze Age battlefield site at Tollense, Germany*. [Journal of Archaeological Science](#) **105** (2019), 70–80.

Oxygen isotopes were analyzed in human teeth dating to approximately 1250 BC from a Bronze Age battlefield along the Tollense River in northwestern Germany. Tooth enamel was sectioned, prepared, and analyzed using Secondary Ion Mass Spectrometry (SIMS) and Confocal Laser Fluorescence Microscopy (CLFM). The results of the study indicate that diagenesis has locally altered the tooth enamel. Brightly luminescing domains seen by confocal laser fluorescent microscopy are chemically changed in oxygen isotope ratios and elemental [Cl] concentrations. Values of  $\delta^{18}\text{O}$  are up to 2.7 ‰ lower in altered domains. Thus, diagenetic changes are observed in enamel that is 3250 years old and has been waterlogged for most of its depositional history. We recommend that studies of enamel in human teeth routinely evaluate the possibility of diagenesis.

**Keywords:** Archaeology | Human proveniencing | Tooth enamel | Oxygen isotopes | Diagenesis | Confocal laser fluorescence microscopy (CLFM) | Secondary ion mass spectrometry (SIMS)

## Judentum

BRITT 2019

Karen Britt & Ra'anana Boustana, *Artistic Influences in Synagogue Mosaics, Putting the Huqoq Synagogue in Context*. [Biblical Archaeology Review](#) **45** (2019), iii, 39–45, 68.

The Huqoq mosaics indicate that local Jewish communities had a great deal of freedom in choosing and arranging the decoration of their synagogue buildings, apparently selecting their particular interests. At the same time, the Huqoq mosaics make conspicuous use of subject matter drawn from Classical art, as well as figures from Greek and Roman mythology and history, suggesting that the villagers had a somewhat cosmopolitan outlook.

None of the Huqoq mosaics has elicited more interest than the enigmatic Elephant Panel, which may depict a historical event from the Hellenistic period. If so, it would indicate that interest in the past among the Jewish communities in Galilee could transcend the boundaries of sacred scripture and encompass historiographic traditions that circulated at the messy intersection of Classical, Jewish, and Christian cultures.

## Klima

### MOUGINOT 2019

Jérémie Mouginot et al., *Forty-six years of Greenland Ice Sheet mass balance from 1972 to 2018*. *PNAS* **116** (2019), 9239–9244.

pnas116-09239-Supplement1.pdf, pnas116-09239-Supplement2.pdf, pnas116-09239-Supplement3.xlsx

Jérémie Mouginot, Eric Rignot, Anders A. Bjørk, Michiel van den Broeke, Romain Millan, Mathieu Morlighem, Brice Noël, Bernd Scheuchl & Michael Wood

We reconstruct the mass balance of the Greenland Ice Sheet using a comprehensive survey of thickness, surface elevation, velocity, and surface mass balance (SMB) of 260 glaciers from 1972 to 2018. We calculate mass discharge,  $D$ , into the ocean directly for 107 glaciers (85 % of  $D$ ) and indirectly for 110 glaciers (15 %) using velocity-scaled reference fluxes. The decadal mass balance switched from a mass gain of  $+47.21 \text{ Gt/y}$  in 1972–1980 to a loss of  $51 \pm 17 \text{ Gt/y}$  in 1980–1990. The mass loss increased from  $41 \pm 17 \text{ Gt/y}$  in 1990–2000, to  $187 \pm 17 \text{ Gt/y}$  in 2000–2010, to  $286 \pm 20 \text{ Gt/y}$  in 2010–2018, or sixfold since the 1980s, or  $80 \pm 6 \text{ Gt/y}$  per decade, on average. The acceleration in mass loss switched from positive in 2000–2010 to negative in 2010–2018 due to a series of cold summers, which illustrates the difficulty of extrapolating short records into longer-term trends. Cumulated since 1972, the largest contributions to global sea level rise are from northwest ( $4.4 \pm 0.2 \text{ mm}$ ), southeast ( $3.0 \pm 0.3 \text{ mm}$ ), and central west ( $2.0 \pm 0.2 \text{ mm}$ ) Greenland, with a total  $13.7 \pm 1.1 \text{ mm}$  for the ice sheet. The mass loss is controlled at  $66 \pm 8 \%$  by glacier dynamics ( $9.1 \text{ mm}$ ) and  $34 \pm 8 \%$  by SMB ( $4.6 \text{ mm}$ ). Even in years of high SMB, enhanced glacier discharge has remained sufficiently high above equilibrium to maintain an annual mass loss every year since 1998.

Keywords: Greenland | glaciology | sea level | climate change | glaciers

Significance: We reconstruct the mass balance of the Greenland Ice Sheet for the past 46 years by comparing glacier ice discharge into the ocean with interior accumulation of snowfall from regional atmospheric climate models over 260 drainage basins. The mass balance started to deviate from its natural range of variability in the 1980s. The mass loss has increased sixfold since the 1980s. Greenland has raised sea level by  $13.7 \text{ mm}$  since 1972, half during the last 8 years.

## Kultur

### GRONENBORN 2018

Detlef Gronenborn, Hans-Christoph Strien, Rolf van Dick & Peter Turchin, *Social diversity, social identity, and the emergence of surplus in the western central European Neolithic*. In: HARALD MEL-  
LER, DETLEF GRONENBORN & ROBERTO RISCH (Hrsg.), *Überschuss ohne Staat – Politische Formen in der Vorgeschichte, 10. Mitteldeutscher Archäologentag vom 19. bis 21. Oktober 2017 in Halle (Saale)*. Tagungen des Landesmuseums für Vorgeschichte Halle 18 (Halle 2018), 201–220.

Soziale Diversität und – zwar archäologisch schwieriger zu fassen – soziale Identität dürften wirkungsvolle gesellschaftsdynamische Antriebskräfte gewesen sein. In diesem Beitrag wird untersucht, wie diese Faktoren in einer Zeit des Aufkommens von Ungleichheit und institutionalisierter Überschussproduktion im westmitteleuropäischen Neolithikum funktioniert haben könnten.

Aufgrund einer typochronologischen Zeitreihenanalyse von keramischen Verzierungsstilen und in der Annahme, dass es sich dabei um soziale Marker handelt, gehen wir davon aus, dass Zyklen sozialer Vielfalt zumindest für die hier diskutierte Zeitspanne nicht an Populationszyklen gekoppelt waren. Möglicherweise handelt es sich dabei um unabhängige Proxydaten für soziale Abläufe. Zyklen sozialer Vielfalt mögen das Bevölkerungswachstum zumindest im Frühneolithikum bis zu einem gewissen Grad gefördert haben und hatten vielleicht auch einen Einfluss auf das Aufkommen und die archäologische Fassbarkeit von Ungleichheit und Überschussproduktion am Übergang vom frühen zum mittleren Neolithikum.

MELLER 2018

HARALD MELLER, DETLEF GRONENBORN & ROBERTO RISCH (Hrsg.), *Überschuss ohne Staat – Politische Formen in der Vorgeschichte, 10. Mitteldeutscher Archäologentag vom 19. bis 21. Oktober 2017 in Halle (Saale)*. Tagungen des Landesmuseums für Vorgeschichte Halle 18 ([Halle 2018](#)).

## Neolithikum

HINZ 2019

Martin Hinz, Johannes Müller & Maria Wunderlich, *The monumentalisation of European landscapes*. In: JOHANNES MÜLLER, MARTIN HINZ & MARIA WUNDERLICH (Hrsg.), *Megaliths – Societies – Landscapes: Early Monumentality and Social Differentiation in Neolithic Europe, Proceedings of the international conference (16th–20th June 2015) in Kiel*. ([Bonn 2019](#)), 21–23.

It is the monumental sites that characterised large parts of Neolithic Europe during the 5th and 4th millennia. During these centuries, Neolithic societies began to construct above-ground monuments and enclosures in many regions of southern, western, northern and central Europe. These developments might be linked to processes of social differentiation, changed economic practices, new exchange systems and ritual traditions.

These perspectives were the central focus of the conference ‘Megaliths, Societies, Landscapes. Early Monumentality and Social Differentiation in Neolithic Europe’, which was held in Kiel with 184 participants from 14 countries by the SPP 1400 ‘Early Monumentality and Social Differentiation’. On the origin and development of Neolithic large-scale buildings and the emergence of early complex societies in Northern Central Europe ‘. The conference especially focused on the interlinkage between Neolithic monuments, the construction of landscapes and the societies.

MÜLLER 2019

JOHANNES MÜLLER, MARTIN HINZ & MARIA WUNDERLICH (Hrsg.), *Megaliths – Societies – Landscapes: Early Monumentality and Social Differentiation in Neolithic Europe, Proceedings of the international conference (16th–20th June 2015) in Kiel*. ([Bonn 2019](#)).

ROSENSTOCK 2019

Eva Rosenstock, Astrid Masson & Bernd Zich, *Moraines, megaliths and moo, Putting the prehistoric tractor to work*. In: JOHANNES

MÜLLER, MARTIN HINZ & MARIA WUNDERLICH (Hrsg.), *Megaliths – Societies – Landscapes: Early Monumentality and Social Differentiation in Neolithic Europe, Proceedings of the international conference (16th–20th June 2015) in Kiel. (Bonn 2019), 1099–1111.*

Models estimating the effort necessary to construct the megalithic monuments of Northern and Western Europe are usually based on manpower. They appear to be heavily influenced by ethnographic analogies derived from cultures where suitable draught animals are not available, as well as by a biased selection of historical records. However, the use of cattle for traction is now well attested in the later Funnel Beaker groups and related cultures by osteological indicators, ard and wheel marks preserved under megalithic monuments, as well as from pictorial evidence.

As the ard and megalith construction coincide in the TBK at ca. 3500 cal BC, our hypothesis is that removing stones and glacial blocks from the fields to create and maintain plots suitable for cultivation with the cattle-driven ard went hand in hand with the use of the retrieved material for construction purposes. We present calculations for the erection of a megalithic grave with teams of cattle used for the hauling of boulders, taking into account the size of the animals and harness type as a proxy for tractive power, the implementation of sledges and sliding surface preparation as proxies for friction, as well as the reconstructed size and frequency of erratic boulders in the moraines of the postglacial landscape. Assuming cattle traction, the human work force necessary to clear the landscape from erratics and erect the monuments of the later TBK calculated in a men-based model can be significantly reduced.

These figures might provide us with the possibility to infer the number of cattle teams needed and thus to assess the degree of specialisation of cattle traction in the Funnel Beaker socio-economy on a scale between multipurpose cows used for meat, milk and traction at the household level on the one end and specialised draught oxen kept at the community level on the other.

## SÁNCHEZ-QUINTO 2019

Federico Sánchez-Quinto et al., *Megalithic tombs in western and northern Neolithic Europe were linked to a kindred society. PNAS 116 (2019), 9469–9474.*

[pnas116-09469-Supplement1.pdf](#), [pnas116-09469-Supplement2.xlsx](#)

Federico Sánchez-Quinto, Helena Malmström, Magdalena Fraser, Linus Girdland-Flink, Emma M. Svensson, Luciana G. Simões, Robert George, Nina Hollfelder, Göran Burenhult, Gordon Noble, Kate Britton, Sahra Talamo, Neil Curtis, Hana Brzobohata, Radka Sumberova, Anders Götherström, Jan Storå & Mattias Jakobsson

Paleogenomic and archaeological studies show that Neolithic lifeways spread from the Fertile Crescent into Europe around 9000 BCE, reaching northwestern Europe by 4000 BCE. Starting around 4500 BCE, a new phenomenon of constructing megalithic monuments, particularly for funerary practices, emerged along the Atlantic façade. While it has been suggested that the emergence of megaliths was associated with the territories of farming communities, the origin and social structure of the groups that erected them has remained largely unknown. We generated genome sequence data from human remains, corresponding to 24 individuals from five megalithic burial sites, encompassing the widespread tradition of megalithic construction in northern and western Europe, and analyzed our results in relation to the existing European paleogenomic data. The various individuals buried in megaliths show genetic affinities with local farming groups within their different chronological contexts. Individuals buried in megaliths display (past) admixture



with local hunter-gatherers, similar to that seen in other Neolithic individuals in Europe. In relation to the tomb populations, we find significantly more males than females buried in the megaliths of the British Isles. The genetic data show close kin relationships among the individuals buried within the megaliths, and for the Irish megaliths, we found a kin relation between individuals buried in different megaliths. We also see paternal continuity through time, including the same Y-chromosome haplotypes reoccurring. These observations suggest that the investigated funerary monuments were associated with patrilineal kindred groups. Our genomic investigation provides insight into the people associated with this long-standing megalith funerary tradition, including their social dynamics.

**Keywords:** paleogenomics | population genomics | migration | megalithic tombs

**Significance:** A new phenomenon of constructing distinctive funerary monuments, collectively known as megalithic tombs, emerged around 4500 BCE along the Atlantic façade. The megalithic phenomenon has attracted interest and speculation since medieval times. In particular, the origin, dispersal dynamics, and the role of these constructions within the societies that built them have been debated. We generate genome sequence data from 24 individuals buried in five megaliths and investigate the population history and social dynamics of the groups that buried their dead in megalithic monuments across northwestern Europe in the fourth millennium BCE. Our results show kin relations among the buried individuals and an overrepresentation of males, suggesting that at least some of these funerary monuments were used by patrilineal societies.

## WUNDERLICH 2019

Maria Wunderlich, Johannes Müller & Martin Hinz, *Diversified monuments, A chronological framework of the creation of monumental landscapes in prehistoric Europe*. In: JOHANNES MÜLLER, MARTIN HINZ & MARIA WUNDERLICH (Hrsg.), *Megaliths – Societies – Landscapes: Early Monumentality and Social Differentiation in Neolithic Europe, Proceedings of the international conference (16th–20th June 2015) in Kiel*. (Bonn 2019), 25–29.

Despite presenting a wide scope of case studies within different regional and chronological contexts, this compilation is only a summary of the fundamentally diverse and complex monumental building activities in the scope of the 5th to 3rd millennium BC. Future research will sharpen our understanding of chronological matters as well as the occurrence of megalithic architecture in other regions of Europe.

## Religion

### CALDWELL-HARRIS 2011

Catherine L. Caldwell-Harrisa, Angela L. Wilson, Elizabeth LoTempio & Benjamin Beit-Hallahmi, *Exploring the atheist personality: well-being, awe, and magical thinking in atheists, Buddhists, and Christians*. *Mental Health, Religion & Culture* 7 (2011), 659–672.

Atheists are America's least trusted group, and stereotypes about them abound: Atheists are non-conformist, sceptical, cynical, and joyless, rarely experiencing awe. Atheists (N=42) were recruited from the American atheist website and compared to Christians (N=22) and Buddhists (N=18). Groups were highly similar in their reported well-being, empathy, and other personality scales, but differed strongly on scales assessing Spirituality and Magical Ideation, where atheists rejected the

concepts of spirituality and magical beliefs. Responding to the question, “Have you ever felt wonderment or felt as if you were part of something greater than yourself?”, 71% said “yes,” citing Nature (54%), Science, (30%), Music/Art (12%), and Human cooperation (8%). Respondents explained their lack of belief as deriving from a preference for logic and rationality, suggesting an intellectual component to atheism. Findings thus support the stereotype of atheists as logical, sceptical, and non-conformist, but not as cynical and joyless.

Keywords: atheism | religiousness | spirituality | awe | well-being | personality

## McPHETRES 2017

Jonathon McPhetres & Miron Zuckerman, *Religious People Endorse Different Standards of Evidence When Evaluating Religious Versus Scientific Claims*. [Social Psychological and Personality Science 8 \(2017\), 836–842](#).

SocPsyPersSci08-836-Supplement.pdf

Recent research has begun to investigate the relationship between religion and science. However, it remains unclear whether religious and nonreligious people differ on the standards of evidence used when evaluating claims in religious versus scientific contexts. Across three studies ( $N = 702$ ), we presented participants with effects that were attributed to scientific methodology or to God and asked them to rate how many more times an effect needs to be repeated in order to have certainty in the outcome. Results showed that religious people requested fewer repetitions compared to nonreligious people when an effect was attributed to prayer, and fewer repetitions when an effect was attributed to prayer compared to scientific methodology. Nonreligious people were relatively consistent across conditions. These results suggest that religious people have less stringent standards of evidence when evaluating nonscientific claims. Directions for future research are also discussed.

Keywords: religion | science | evidence | repetition