Liste erstellt am 2017-01-15

References

Aktuell

Michaelides 2017

Angelos Michaelides & Ben Slater, *Melting the ice one layer at a time.* PNAS **114** (2017), 195–197.

Sánchez 2017

M. Alejandra Sánchez et al., *Experimental and theoretical evidence for bilayer-bybilayer surface melting of crystalline ice.* PNAS **114** (2017), 227–232.

M. Alejandra Sánchez, Tanja Kling, Tatsuya Ishiyama, Marc-Jan van Zadel, Patrick J. Bisson, Markus Mezger, Mara N. Jochum, Jenée D. Cyran, Wilbert J. Smit, Huib J. Bakker, Mary Jane Shultz, Akihiro Morita, Davide Donadio, Yuki Nagata, Mischa Bonn & Ellen H. G. Backus

On the surface of water ice, a quasi-liquid layer (QLL) has been extensively reported at temperatures below its bulk melting point at 273 K. Approaching the bulk melting temperature from below, the thickness of the QLL is known to increase. To elucidate the precise temperature variation of the QLL, and its nature, we investigate the surface melting of hexagonal ice by combining noncontact, surfacespecific vibrational sum frequency generation (SFG) spectroscopy and spectra calculated from molecular dynamics simulations. Using SFG, we probe the outermost water layers of distinct single crystalline ice faces at different temperatures. For the basal face, a stepwise, sudden weakening of the hydrogen-bonded structure of the outermost water layers occurs at 257 K. The spectral calculations from the molecular dynamics simulations reproduce the experimental findings; this allows us to interpret our experimental findings in terms of a stepwise change from one to two molten bilayers at the transition temperature.

Keywords: crystalline ice | surface melting | sum frequency generation | stepwise | water

Significance: Over 150 years ago, Faraday discovered the presence of a water layer on ice below the bulk melting temperature. This layer is important for surface chemistry and glacier sliding close to subfreezing conditions. The nature and thickness of this quasiliquid layer has remained controversial. By combining experimental and simulated surface-specific vibrational spectroscopy, the thickness of this quasi-liquid layer is shown to change in a noncontinuous, stepwise fashion around 257 K. Below this temperature, the first bilayer is already molten; the second bilayer melts at this transition temperature. The blue shift in the vibrational response of the outermost water molecules accompanying the transition reveals a weakening of the hydrogen bond network upon an increase of the water layer thickness.

Anthropologie

Samuni 2017

Liran Samuni, Anna Preis, Roger Mundry, Tobias Deschner, Catherine Crockford & Roman M. Wittig, *Oxytocin reactivity during intergroup*

conflict in wild chimpanzees. PNAS **114** (2017), 268–273.

pnas114-00268-Supplement.xlsx

Intergroup conflict is evident throughout the history of our species, ubiquitous across human societies, and considered crucial for the evolution of humans' large-scale cooperative nature. Like humans, chimpanzee societies exhibit intragroup coordination and coalitionary support during violent intergroup conflicts. In both species, cooperation among group members is essential for individuals to gain access to benefits from engaging in intergroup conflict. Studies suggest that a contributive mechanism regulating in-group cooperation during intergroup conflicts in humans involves the neuropeptide hormone oxytocin, known to influence trust, coordination, and social cognition, although evidence from natural settings is lacking. Here, applying a noninvasive method, we investigate oxytocinergic system involvement during natural intergroup conflicts in wild chimpanzees. We found that chimpanzees of both sexes had significantly higher urinary oxytocin levels immediately before and during intergroup conflict compared with controls. Also, elevated hormone levels were linked with greater cohesion during intergroup conflicts, rather than with the level of potential threat posed by rival groups, intragroup affiliative social interactions, or coordinated behavior alone. Thus, the oxytocinergic system, potentially engendering cohesion and cooperation when facing an out-group threat, may not be uniquely human but rather a mechanism with evolutionary roots shared by our last common ancestor with chimpanzees, likely expediting fitness gains during intergroup conflict.

Keywords: Pan troglodytes | cooperation | group cohesion | neuropeptide | parochial altruism

Significance: Warfare is one of the most pervasive problems among human societies, and understanding mechanisms involved in in-group cooperation and favoritism is of paramount importance. Wild chimpanzees share key features of humans' intergroup conflict, in terms of in-group coordination, coalitionary support, and out-group hostility. The hormone oxytocin may regulate humans' intergroup conflict, although tests in natural settings are lacking. We found strong evidence that, like in humans, oxytocin is involved in chimpanzee intergroup conflict. Both intergroup conflict anticipation and participation involved high urinary oxytocin levels, irrespective of intragroup affiliations or potential threat by rivals. These results are indicative of similar physiological processes involved in intergroup violence and intragroup support in both species, likely supporting behavior that is adaptive during intergroup conflicts.

Archäologie

Crumley 1994
Carole L. Crumley, *Historical Ecology*, *A Multidimensional Ecological Orientation*. In: Carole L. Crumley (Hrsg.), *Historical Ecology*, *Cultural Knowledge and Changing Landscapes*. (Santa Fe 1994), 1–16.

Crumley 1994
Carole L. Crumley (Hrsg.), *Historical Ecology*, *Cultural Knowledge and Changing Landscapes*. (Santa Fe 1994).

Schmidt 1994
Peter R. Schmidt, *Historical Ecology and Landscape Transformation in Eastern Equatorial Africa*. In: Carole L. Crumley (Hrsg.),

Historical Ecology, *Cultural Knowledge and Changing Landscapes*. (Santa Fe 1994), 99–125.

In sum, the values and religious-political sanctions that once checked unbridled exploitation have passed into distant memory. In their place has arisen a system of forest management based on village and regional authority, an uneven scheme with overlapping and ill-defined responsibilities that promotes corruption and widespread abuses. The few remaining secondary forests are fast disappearing, and the remnant groundwater forests of the large swamps are being exploited as never before. Within the villages some trees are specifically planted along farm boundaries and cropped for building poles and firewood. During the late colonial period and the first decade of independence (that is, the years following World War II until the 1960s) people were actively encouraged to start small plantations of eucalyptus on fallow land; these plots have indeed become alternative sources of fuel and building poles, but they are now being cut without replanting.

Bibel

Kreuzer 2006

Siegfried Kreuzer, *Zebaoth – Der Thronende*. Vetus Testamentum **56** (2006), 347–362.

Die im Wörterbuch genannten Einträge dürften derselben Basis zugehören, nämlich db3, welches Verb auch außerhalb des Königtums im Sinn von „sitzen, sich setzen“ gebraucht werden kann. Das Nomen db3.t bezeichnet so auf jeden Fall einen ’‚Thronsitz“ im weiteren Sinn, so daß am ehesten an den Naos im ägyptischen Tempel zu denken wäre. Die Basis db3 kann mühelos als semantisches Aquivalent der hebräischen Basis YŠB verstanden werden, von besonderer Relevanz ist aber, daß das Wörterbuch db3.tj anführt, und zwar nicht nur als Titel des Hohepriesters von Memphis, sondern vor allem auch als ein im Neuen Reich und später belegtes Gottesepitheton, als „Beiname von Göttern“, so des Osiris, des Horus oder des Chons.

Den Titel db3.tj konnen wir nun m.E. problemlos zu dem hebräischen ṣb’wt in Beziehung setzen. Der Titel „Kerubenthroner“ darf geradezu als hebräische Äquivalent zu dem (ursprünglich ägyptischen) Titel db3.tj/ṣb’wt betrachtet werden.

Mitchell 2006

David C. Mitchell, *‘God Will Redeem My Soul from Sheol’, The Psalms of the Sons of Korah*. Journal for the Study of the Old Testament **30** (2006), iii, 365–384.

After defining the Korah collection, this study shows that biblical tradition about the Korahites is marked by the theme of redemption from Sheol. This theme is discussed, particularly in regard to the resurrection of the dead. Then an examination of the Korah Psalms shows that the theme appears there also. Moreover, some of these psalms seem to feature the related idea of the righteous being caught up in the air when the earth opens. These ideas occur in later literature with proof-texts from the Korah Psalms, which would appear to be their source. Correspondences are drawn between these traits of the Korah Psalms and the author’s proposed eschatological programme in the Psalter.

Sawyer 1973

John F. A. Sawyer, *Hebrew Words for the Ressurection of the Dead*. Vetus Testamentum **23** (1973), 218–234.

It was in the Middle Period, that is, from at the latest the second century B.C., that doctrine of the resurrection of the dead assumed a central position in Jewish thought. In the Early Period, for various reasons which have been well enough analysed elsewhere, Israelite traditions about life after death seem to have been, officially at any rate, confined to the vague, shadowy pictures of Sheol with which we are familiar. Doubts as to whether, apart from the most exceptional cases, notably Enoch and Elijah, there is any hope for a man after his death, are specifically voiced more than once in the Old Testament. It was in the Middle Period that the conviction that death is not the end of a man's communion with God, came to be elaborated and doggedly defended.

There are hardly 20 passages which, the final form of the text as it was probably understood in the context described above, refer to or describe the resurrection of the dead This is not evidence for an ancient Israelite belief, but an Old Testament theology based on the final form of the text would have to clude a substantial section on the subject. These passages are not vague foreshadowings of the New Testament, as some have argued but clear expressions of belief in God's power to create out of the and decay of the grave a new humanity where good lives do not in suffering and justice prevails.

Deut. xxxii 39; 1 Sam. ii 6; 1 Kgs. xvii 22; Isa. xxvi 14, 19; liii lxvi 24; Ezek. xxxvii 10; Hos. vi 2; Ps. i 5; xvi 19; xvii 15; xlix 16; lxxii 16; 24; lxxxviii 11; Job xiv 12; xix 25-7; Dan. xii 2.

Waite 2010

Jerry Waite, *The Census of Israelite Men after their Exodus from Egypt*. Vetus Testamentum **60** (2010), 487–491.

Isotope

Wallace 2013

M. Wallace, G. Jones, M. Charles, R. Fraser, P. Halstead, T. H. E. Heaton & A. Bogaard, *Stable carbon isotope analysis as a direct means of inferring crop water status and water management practices*. World Archaeology **45** (2013), 388–409.

WorldArchaeology45-388-Supplement.pdf

Stable carbon isotope analysis of plant remains is a promising tool for researchers studying palaeoclimate and past agricultural systems. The potential of the technique is clear: it offers a direct measure of the water conditions in which plants grew. In this paper, we assess how reliably stable carbon isotope discrimination can be used to infer water conditions, through the analysis of present-day crop plants grown at multiple locations across the Mediterranean and south-west Asia. The key findings are that: (1) D13C, as expected, provides an indication of water conditions, (2) even for plants grown in similar conditions there is variation in D13C and (3) D13C may reflect crop water status for a period beginning well before the grain filling period. A new framework is presented which increases the robustness with which D13C values of plant remains can be interpreted in terms of the water conditions in which ancient crops grew.

Keywords: Carbon isotopes | Archaeobotany | Experimental archaeology | Cereals | Pulses | Water | Rainfall | Irrigation.

Judentum

Mitchell 2009

David C. Mitchell, *A Dying and Rising Josephite Messiah in 4Q372*. Journal for the study of the Pseudepigrapha **18** (2009), 181–205.

This article draws attention to difficulties in the prevailing interpretation of 4Q372, which sees the text as referring to the fall of the historical northern kingdom. This study suggests the Joseph figure of 4Q372 appears to be a righteous king or 'eschatological patriarch' who quotes in his death-throes Psalms 89 and 22, like the suffering Ephraim Messiah of Pesikta Rabbati 36-37. This study therefore argues that the genre of 4Q372 is not history but prophecy, a view supported by its verbal forms. Such an interpretation has implications for the dating of the Josephite Messiah.

Keywords: 4Q372 | Joseph Apocryphon | 4QNarrative and Poetic Composition | Messiah ben Joseph | Josephite Messiah | Messiah bar Ephraim | dying Messiah.

Klima

Bush 2017

Mark B. Bush, *The resilience of Amazonian forests*. nature **541** (2017), 167–168.

Isotope evidence suggests that, during dry periods associated with the most recent ice age, the Amazonian forest survived in a region that is sensitive to rainfall changes — settling a debate about Amazonian aridity.

Most interestingly, Wang et al. find that, during the Last Glacial Maximum, the Amazonian landscape remained as forest even when precipitation above the Paraíso Cave fell to a level about 42 % lower than modern rainfall at the site. The Amazonian forests were saved by cooling: the lower temperatures reduced evaporation rates from the forests and offset the loss of rainfall, so that the net effect was an approximately 20 % decline in moisture availability.

Fire can transform a relatively wet forest into savannah, but in the absence of fire a lot of drying is needed for such a conversion to occur. Wang and colleagues' findings imply that fires must have been extremely rare for forest to have survived the net 20 % drying that occurred over the course of the most recent ice age. This implication is supported by an analysis of sediments recovered from the Amazon delta. The discovery that fire rarity contributed greatly to the maintenance of forest at that time has profound implications for future conservation of the region.

Wang 2017

Xianfeng Wang et al., *Hydroclimate changes across the Amazon lowlands over the past 45,000 years*. nature **541** (2017), 204–207.

n541-0204-Supplement.xls

Xianfeng Wang, R. Lawrence Edwards, Augusto S. Auler, Hai Cheng, Xinggong Kong, Yongjin Wang, Francisco W. Cruz, Jeffrey A. Dorale & Hong-Wei Chiang

Reconstructing the history of tropical hydroclimates has been difficult, particularly for the Amazon basin—one of Earth's major centres of deep atmospheric convection1,2. For example, whether the Amazon basin was substantially drier3,4 or remained wet1,5 during glacial times has been controversial, largely because most study sites have been located on the periphery of the basin, and because interpretations can be complicated by sediment preservation, uncertainties in chronology, and topographical setting6. Here we show that rainfall in the basin

responds closely to changes in glacial boundary conditions in terms of temperature and atmospheric concentrations of carbon dioxide7. Our results are based on a decadally resolved, uranium/thorium-dated, oxygen isotopic record for much of the past 45,000 years, obtained using speleothems from Paraíso Cave in eastern Amazonia; we interpret the record as being broadly related to precipitation. Relative to modern levels, precipitation in the region was about 58 % during the Last Glacial Maximum (around 21,000 years ago) and 142 % during the midHolocene epoch (about 6,000 years ago). We find that, as compared with cave records from the western edge of the lowlands, the Amazon was widely drier during the last glacial period, with much less recycling of water and probably reduced plant transpiration, although the rainforest persisted throughout this time.

Religion

Kolankaya-Bostanci 2014

Neyir Kolankaya-Bostancı, *The Evidence of Shamanism Rituals in Early*. Colloquium Anatolicum **13** (2014), 185–204.

The life ways of early prehistoric groups are presumed to have been the most ancient prototypes for shamanic beliefs. This shamanic hypothesis is based on a fusion of direct evidence from the caves of Palaeolithic, rock art of Mesolithic, stone pillars of Pre-Pottery Neolithic and shrine walls of Neolithic themselves with observations of more recent shamanist societies that still produce figurative art. These shamanistic interpretations of art and ritual might help us to understand more comprehensively the imagistic mode of religion, so prevalent in the early prehistoric periods.

Presuming the Upper Palaeolithic and Mesolithic art of Europe and PrePottery Neolithic and Neolithic art of Anatolia simulate scenes, one may think that the prehistoric belief system is animistic in nature. The similarities between these periods suggest a very long term and very far flung set of myths, ideas and orientations, even if there were many local variations. Also it is possible to concur that the adopting of farming and the settled life style did not totally replace the belief system of the earlier periods of hunter-gatherers. However, socio-economic restricting could have brought certain changes in the organization of spiritual activities.

Keywords: Shamanism | Rituals | Palaeolithic | Mesolithic | Neolithic