

Literatur

Aktuell

DODSON 2013

John Dodson, Pauline Grierson, John Bennett, Susana Melo de Howard & Henri Wong, *Nuclear science and the story of a preserved leaf from a copy of the Great Bible*. [Journal of Archaeological Science](#) **40** (2013), 1700–1702.

Three pressed leaves of *Ulmus glabra* (Wych Elm) were found within the pages of a copy of the Great Bible in the Library of the University of Western Australia. The Bible dates from AD 1540 and was originally housed at Ely Cathedral in Cambridgeshire. A radiocarbon age on one of the leaves found it was about as old as the Great Bible itself, and stable C and N isotope and neutron activation analyses were carried out on the same leaf. The $\delta^{15}\text{N}$ values were elevated and the content of iron, arsenic, bromine, silver, gold and mercury were relatively high. These analyses are consistent with an environment where water logging is present, as at Ely at the time, and the silver and gold content are probably consistent with the cathedral setting. The mercury was found to be associated with the red ink in the Bible. It is intriguing to ponder why Wych elm leaves were placed in the Bible, especially in the light that a copy of an original edition of the King James version of the Bible from Ely, also in the library in Perth has many dozens of *U. glabra* leaves also preserved within in its pages.

Keywords: Ancient Bible leaves | Nuclear methods | Environmental setting | Great Bible

DORIDOT 2013

Ludivine Doridot et al., *Preeclampsia-Like Symptoms Induced in Mice by Fetoplacental Expression of STOX1 Are Reversed by Aspirin Treatment*. [Hypertension](#) **61** (2013), 662–668.

[Hypertension061-0662-Supplement1.pdf](#)

Ludivine Doridot, Bruno Passet, Celine Mehats, Virginie Rigourd, Sandrine Barbaux, Aurelien Ducat, Francoise Mondon, Marthe Vilotte, Johann Castille, Michelle Breuiller-Fouche, Nathalie Daniel, Fabienne le Provost, Anne-Laure Bauchet, Veronique Baudrie, Alexandre Hertig, Christophe Buffat, Umberto Simeoni, Guy Germain, Jean-Luc Vilotte, Daniel Vaiman

Preeclampsia (PE) is a common human-specific pregnancy disorder defined by hypertension and proteinuria during gestation and responsible for maternal and fetal morbimortality. *STOX1*, encoding a transcription factor, was the first gene associated with PE as identified by positional cloning approaches. Its overexpression in choriocarcinoma cells mimics the transcriptional consequences of PE in the human placenta. Here, we created transgenic mouse strains overexpressing human *STOX1*. Wild-type female mice crossed with transgenic male mice reproduce accurately the symptoms of severe PE: gestational hypertension, proteinuria, and elevated plasma levels of soluble fms-like tyrosine kinase 1 and soluble endoglin. Placental and kidney histology were altered. Symptoms were prevented or alleviated by aspirin treatment. *STOX1*overexpressing mice constitute a unique model for studying PE, allow testing therapeutic approaches, and assessing the long-term effects of the preeclamptic syndrome.

family Keywords: hypertension | mouse model | preeclampsia | proteinuria | STOX1

OLSZEWSKI 2011

Marek Titien Olszewski, *The Orpheus Funerary Mosaic from Jerusalem in the Archaeological Museum at Istanbul*. In: MUSTAFA ŞAHİN (Hrsg.), *Mosaics of Turkey and Parallel Developments in the Rest of the Ancient and Medieval World, 11th international colloquium on ancient mosaics October 16th–20th, 2009, Bursa Turkey*. Uludağ University Mosaic Research Center Series ([İstanbul 2011](#)), 655–664.

The late Antique mosaic of Orpheus decorated a small room, approximately 18 m² in area, connected with two even smaller ones, in 4 m² and the other 2 m² in area, belonging most likely to a small funerary chapel (or tomb) discovered in the ancient necropolis by the Damascene Gate in Jerusalem; it was discovered in 1901 by H. Vincent. The author proposes a new interpretation of the iconographic program of the Orpheus myth used by wealthy Christians in a sepulchral context (see Olszewski M.T. “Orphee endeuille de la mosaïque funéraire de Jerusalem”, in Rey Mimoso-Ruiz, B. ed., *Actes du colloque “Orphee entre soleil et ombre”*, a l’institut Catholique de Toulouse du 16 au 17 novembre 2007, inter lignes, numeros special – mars 2008: 205-214, 226). He also proposes a new interpretation of the role Orpheus played in Roman funerary art, concentrating on the importance of the play on words and the visual and textual punning that was popular in ancient art and especially in funerary art. He rejects the popular interpretation of Orpheus as Christ in the Roman catacombs and proposes to interpret the image as that of Orpheus, bard of the departed souls, without any ahistorical connection with Christ. The program of the mosaic from Jerusalem is thus explained as a play on the words Orpheus-orphanos and Chiron (X-P) and Pan [Παν(τοκράτωρ)]. The frequently used Christian funerary formula of resting in peace, Christ or the lord corresponds perfectly with the mood created around the mythical bard. Orpheus’ universal role as singer and musician moving even the most stony of hearts, extolling the beloved departed, is absolutely justified in the context of a 6th-century Christian tomb. Orpheus is a popular and neutral figure, meaning that in effect it does not constitute a threat to Christian theology and can be tolerated by the educated Christians of Jerusalem.

family Keywords: funerary mosaic; sundial, Orpheus; play on words (Orpheus-orphanos); Christogram (Chi-Rho); Christ Pantokrator.

WERLIN 2009

Steven H. Werlin, *The Maccabean Revolt: Between Tradition and History, Newsletter for public school teachers by Society of Biblical Literature*. [Teaching the Bible \(2009\)](#).

In modern Judaism, the holiday of Chanukah celebrates the victorious revolt of the Jews against the Seleucid Greeks in 167-164 BCE (“before the common era” = BC). Today we refer to these events as the Maccabean Revolt, named after the Jewish leader, Judah Maccabee. Like many biblical episodes, the story begins with a dramatic struggle against hatred and tyranny, and it ends with a miracle.

Traditional histories tend to view ancient events in black-and-white, right-and-wrong, Judah Maccabees and Antiochus Epiphaneses. But real life is rarely so neat. As the saying goes, there are two sides to every story, but history is written by the winners. So, when we study history, it is important to look at the information that has been passed down to us with a critical eye. How can we get to the historical reality behind this traditional tale? What sorts of critical questions can we ask about the story?

Anthropologie

PEARCE 2012

Eiluned Pearce & Robin Dunbar, *Latitudinal variation in light levels drives human visual system size*. *Biology Letters* 8 (2012), 90–93.

BiolLett08-090-Supplement1.pdf

Ambient light levels influence visual systemsize in birds and primates. Here, we argue that the same is true for humans. Light levels, in terms of both the amount of light hitting the Earth’s surface and day length, decrease with increasing latitude. We demonstrate a significant positive relationship between absolute latitude and human orbital volume, an index of eyeball size. Owing to tight scaling between visual system components, this will translate into enlarged visual cortices at higher latitudes. We also show that visual acuity measured under full-daylight conditions is constant across latitudes, indicating that selection for larger visual systems has mitigated the effect of reduced ambient light levels. This provides, to our knowledge, the first support that light levels drive intraspecific variation in visual system size in the human population.

sfamily Keywords: latitude; light levels; eyeball size; visual cortex size; day length

PEARCE 2013

Eiluned Pearce, Chris Stringer & R. I. M. Dunbar, *New insights into differences in brain organization between Neanderthals and anatomically modern humans*. *Proc. Royal Society B* (2013), preprint, 1–7.

[DOI:10.1098/rspb.2013.0168](https://doi.org/10.1098/rspb.2013.0168).

ProcRSocB2013-preprint-Supplement1.docx

Previous research has identified morphological differences between the brains of Neanderthals and anatomically modern humans (AMHs). However, studies using endocasts or the cranium itself are limited to investigating external surface features and the overall size and shape of the brain. A complementary approach uses comparative primate data to estimate the size of internal brain areas. Previous attempts to do this have generally assumed that identical total brain volumes imply identical internal organization. Here, we argue that, in the case of Neanderthals and AMHs, differences in the size of the body and visual system imply differences in organization between the same-sized brains of these two taxa. We show that Neanderthals had significantly larger visual systems than contemporary AMHs (indexed by orbital volume) and that when this, along with their greater body mass, is taken into account, Neanderthals have significantly smaller adjusted endocranial capacities than contemporary AMHs. We discuss possible implications of differing brain organization in terms of social cognition, and consider these in the context of differing abilities to cope with fluctuating resources and cultural maintenance.

sfamily Keywords: Neanderthals, brain’s orbits, body mass, social cognition

THOMPSON 2013

Randall C. Thompson et al., *Atherosclerosis across 4000 years of human history: the Horus study of four ancient populations*. *The Lancet* (2013), preprint, 1–12. [DOI:10.1016/S0140-6736\(13\)60598-X](https://doi.org/10.1016/S0140-6736(13)60598-X).

Randall C Thompson, Adel H Allam, Guido P Lombardi, L Samuel Wann, M Linda Sutherland, James D Sutherland, Muhammad Al-Tohamy Soliman, Bruno Frohlich, David T Mininberg, Janet M Monge, Clide M Vallodolid, Samantha L Cox, Gomaa Abd el-Maksoud, Ibrahim Badr, Michael I Miyamoto, Abd el-Halim Nur el-din, Jagat Narula, Caleb E Finch, Gregory S Thomas

Background: Atherosclerosis is thought to be a disease of modern human beings and related to contemporary lifestyles. However, its prevalence before the modern era is unknown. We aimed to evaluate preindustrial populations for atherosclerosis. **Methods:** We obtained whole body CT scans of 137 mummies from four different geographical regions or populations spanning more than 4000 years. Individuals from ancient Egypt, ancient Peru, the Ancestral Puebloans of southwest America, and the Unangan of the Aleutian Islands were imaged. Atherosclerosis was regarded as definite if a calcified plaque was seen in the wall of an artery and probable if calcifications were seen along the expected course of an artery.

Findings: Probable or definite atherosclerosis was noted in 47 (34%) of 137 mummies and in all four geographical populations: 29 (38%) of 76 ancient Egyptians, 13 (25%) of 51 ancient Peruvians, two (40%) of five Ancestral Puebloans, and three (60%) of five Unangan hunter gatherers ($p=NS$). Atherosclerosis was present in the aorta in 28 (20%) mummies, iliac or femoral arteries in 25 (18%), popliteal or tibial arteries in 25 (18%), carotid arteries in 17 (12%), and coronary arteries in six (4%). Of the five vascular beds examined, atherosclerosis was present in one to two beds in 34 (25%) mummies, in three to four beds in 11 (8%), and in all five vascular beds in two (1%). Age at time of death was positively correlated with atherosclerosis (mean age at death was 43 [SD 10] years for mummies with atherosclerosis vs 32 [15] years for those without; $p<0.0001$) and with the number of arterial beds involved (mean age was 32 [SD 15] years for mummies with no atherosclerosis, 42 [10] years for those with atherosclerosis in one or two beds, and 44 [8] years for those with atherosclerosis in three to five beds; $p<0.0001$).

Interpretation: Atherosclerosis was common in four preindustrial populations including preagricultural hunter-gatherers. Although commonly assumed to be a modern disease, the presence of atherosclerosis in premodern human beings raises the possibility of a more basic predisposition to the disease.

Biologie

ABBO 2013

Shahal Abbo, Inbar Zezak, Yael Zehavi, Efrat Schwartz, Simcha Lev-Yadun & Avi Gopher, *Six seasons of wild pea harvest in Israel: bearing on Near Eastern plant domestication*. [Journal of Archaeological Science](#) **40** (2013), 2095–2100.

Harvest experiments of wild crop relatives are essential for our understanding of the biology of wild plants embodied in the economy of ancient forager communities. Most of the previous experimental harvest reports spanned a single season and therefore are unable to address questions concerning longterm yield potential. Herein we report on six consecutive harvest seasons taking place at four sites in Israel that harbour wild pea populations: three typical *Pisum fulvum* sites and one typical *Pisum elatius* site. Three out of the four sites showed no indication of a decline in grain yield as a result of repeated harvest and the removal of a considerable portion of mature seeds. Site-specific factors seem to have a strong influence on the grain yield as no seasonal yield similarity was observed between adjacent and ecologically similar sites harbouring the same wild pea taxon. The erratic year-to-year wild pea yield we observed calls for a reassessment of the presumed role of grain legume species in Near Eastern huntergatherers' diet. Combined with published data on cultivation of wild pea, our results are inconsistent with models suggesting protracted domestication of Near Eastern grain legumes or with the preliminary attempts to apply Niche Construction Theory to the study of plant domestication in the Near East.

Keywords: Foraging | Neolithic revolution | Niche construction | *Pisum* sp.

HUFTHAMMER 2013

Anne Karin Hufthammer & Lars Walløe, *Rats cannot have been intermediate hosts for *Yersinia pestis* during medieval plague epidemics in Northern Europe*. *Journal of Archaeological Science* **40** (2013), 1752–1759.

The commonly accepted understanding of modern human plague epidemics has been that plague is a disease of rodents that is transmitted to humans from black rats, with rat fleas as vectors. Historians have assumed that this transmission model is also valid for the Black Death and later medieval plague epidemics in Europe. Here we examine information on the geographical distribution and population density of the black rat (*Rattus rattus*) in Norway and other Nordic countries in medieval times. The study is based on older zoological literature and on bone samples from archaeological excavations. Only a few of the archaeological finds from medieval harbour towns in Norway contain rat bones. There are no finds of black rats from the many archaeological excavations in rural areas or from the inland town of Hamar. These results show that it is extremely unlikely that rats accounted for the spread of plague to rural areas in Norway. Archaeological evidence from other Nordic countries indicates that rats were uncommon there too, and were therefore unlikely to be responsible for the dissemination of human plague. We hypothesize that the mode of transmission during the historical plague epidemics was from human to human via an insect ectoparasite vector.

Keywords: Black death | Medieval plague | *Rattus rattus* | *Pulex irritans*

Energie

BONKA 1990

Hans Bonka, *Schwankungsbreite der Ortsdosisleistung durch natürliche Strahlung*. *Physikalische Blätter* **46** (1990), iv, 126–128.

Unsere wissenschaftlichen Kenntnisse über die gesundheitlichen Auswirkungen ionisierender Strahlung im Bereich niedriger Dosen und Dosisleistungen sind noch sehr lückenhaft. Die Bewertung und Begrenzung von Strahlenexpositionen auf der Ebene der Wirkung ist deshalb sehr schwierig. Leichter gelingen sie auf der Ebene der Exposition, d. h. der Dosis. Hier sind Vergleiche mit Zahlenwerten und Schwankungsbreiten der natürlichen Strahlenexposition möglich. Während über die natürliche Strahlenexposition durch Radon in einem Aufsatz von W. Jacobi im Oktober-Heft 1989 der *Physikalischen Blätter* berichtet wurde, beschäftigt sich der folgende Beitrag von H. Bonka mit den Komponenten terrestrische Strahlung und kosmische Strahlung. Die beschriebenen Messungen zeigen, daß das sog. 30-mrem-Konzept der Strahlenschutzverordnung, wonach ein Bürger durch ein bundesdeutsches Kernkraftwerk im Prinzip im schlimmsten Fall eine Jahresdosis von 30 mrem erhalten darf, voll und ganz mit der Schwankungsbreite der natürlichen Strahlungsexposition in der Bundesrepublik begründet werden kann.

Klima

ANDERSON 2013

D. M. Anderson, E. M. Mauk, E. R. Wahl, C. Morrill, A. J. Wagner, D. Easterling & T. Rutishauser, *Global warming in an independent record*

of the past 130 years. *Geophysical Research Letters* **40** (2013), 189–193. DOI:10.1029/2012GL054271.

GeoResLet40-00189-Supplement1.pdf, GeoResLet40-00189-Supplement2.pdf, GeoResLet40-00189-Supplement3.txt, GeoResLet40-00189-Supplement4.txt

The thermometer-based global surface temperature time series (GST) commands a prominent role in the evidence for global warming, yet this record has considerable uncertainty. An independent record with better geographic coverage would be valuable in understanding recent change in the context of natural variability. We compiled the Paleo Index (PI) from 173 temperature-sensitive proxy time series (corals, ice cores, speleothems, lake and ocean sediments, historical documents). Each series was normalized to produce index values of change relative to a 1901–2000 base period; the index values were then averaged. From 1880 to 1995, the index trends significantly upward, similar to the GST. Smaller-scale aspects of the GST including two warming trends and a warm interval during the 1940s are also observed in the PI. The PI extends to 1730 with 67 records. The upward trend appears to begin in the early 19th century but the year-to-year variability is large and the 1730–1929 trend is small.

DEAN 2013

Jonathan R. Dean et al., *Palaeo-seasonality of the last two millennia reconstructed from the oxygen isotope composition of carbonates and diatom silica from Nar Gölü, central Turkey*. *Quaternary Science Reviews* **66** (2013), 35–44.

Jonathan R. Dean, Matthew D. Jones, Melanie J. Leng, Hilary J. Sloane, C. Neil Roberts, Jessie Woodbridge, George E. A. Swann, Sarah E. Metcalfe, Warren J. Eastwood & Yiğitbaşıoğlu

Carbonates and diatoms are rarely deposited together in lake sediments in sufficient quantities for the oxygen isotope composition ($\delta^{18}\text{O}$) to be investigated simultaneously from both hosts. Here, $\delta^{18}\text{O}_{\text{carbonate}}$ are compared to $\delta^{18}\text{O}_{\text{diatom}}$ data from the varved sediments of Nar Gölü, a closed lake in central Turkey, over the last 1710 years. Lake monitoring suggests carbonate is probably precipitated during May/June and $\delta^{18}\text{O}_{\text{carbonate}}$ is a proxy for regional water balance. Diatom activity is mainly weighted towards the spring. At times between ≈ 301 and 561 AD, while $\delta^{18}\text{O}_{\text{carbonate}}$ values are the highest for the entire 1710 year period, suggesting summer drought, $\delta^{18}\text{O}_{\text{corrected-diatom}}$ values are among the lowest. $\delta^{18}\text{O}_{\text{lakewater}}$ values estimated for the times of diatom growth and carbonate precipitation show large differences. We suggest this could be explained by increased snowmelt that formed a freshwater lid on the lake at the time of peak diatom growth. Increased snowmelt is also inferred ≈ 561 –801 AD. From 801 AD to the present, precipitation is less winter-dominated, although increased snowmelt is inferred 921–1071 AD and in the latter part of the Little Ice Age (i.e. the mid to late 1800s AD). By combining oxygen isotope data from hosts that form in lakes at different times of the year, we show that such analyses can provide insights into palaeo-seasonality.

Keywords: $\delta^{18}\text{O}$ | Seasonality | Near East | Mass balance | Energy-Dispersive X-ray Spectroscopy | Lake sediments

FAN 2013

Y. Fan, H. Li & G. Miguez-Macho, *Global Patterns of Groundwater Table Depth*. *science* **339** (2013), 940–943.

s339-0940-Supplement1.pdf

Shallow groundwater affects terrestrial ecosystems by sustaining river base-flow and root-zone soil water in the absence of rain, but little is known about the global patterns of water table depth and where it provides vital support for land ecosystems. We present global observations of water table depth compiled from government archives and literature, and fill in data gaps and infer patterns and processes using a groundwater model forced by modern climate, terrain, and sea level. Patterns in water table depth explain patterns in wetlands at the global scale and vegetation gradients at regional and local scales. Overall, shallow groundwater influences 22 to 32 % of global land area, including $\approx 15\%$ as groundwater-fed surface water features and 7 to 17 % with the water table or its capillary fringe within plant rooting depths.

FLOHN 1981

Hermann Flohn, *Klimaänderung als Folge der CO₂-Zunahme?* [Physikalische Blätter 37 \(1981\), vii, 184–190.](#)

Der CO₂-Haushalt der Erdoberfläche ist im wesentlichen bedingt durch die vier großen Reservoirs Atmosphäre, Ozean, Biosphäre und Felsgestein. Zusammen mit der Sonneneinstrahlung und dem Wärmetransport durch Meeres- und Luftströmungen ergibt sich ein äußerst kompliziertes System. Sehr aufwendige Modellrechnungen haben in neuester Zeit quantitative Aussagen zur Klimaentstehung ermöglicht, welche weitgehend mit paläoklimatischen Beobachtungen übereinstimmen.

Auf jeden Fall muß das Problem ernst genommen werden: Es bedroht die Bevölkerung der Erde als Ganzes, es bedroht die Generation unserer Kinder und Enkel im Verlauf des nächsten Jahrhunderts. Es handelt sich um ein geophysikalisches Experiment größten Stils: Wir verbrennen in wenigen Jahrhunderten die fossilen Brennstoffvorräte, welche die Photosynthese in 400 Millionen Jahren mit Hilfe der Sonnenstrahlung aufgehäuft hat. Dies ist eine der großen Herausforderungen unserer Zeit vor dem Hintergrund der (in absoluten Zahlen) noch immer anwachsenden Bevölkerung (um 75 Millionen pro Jahr, mehr als 2 pro Sekunde). Eine Anpassungsstrategie versagt notwendig vor Klimaereignissen dieses globalen Ausmaßes bei einer Erdbevölkerung von dann 8–10 oder gar 12 Milliarden. Wir stehen in der vollen Verantwortung für die künftigen Generationen; es geht hier nicht um Argumente für einen Wahlkampf in der kurzatmigen Zeitskala der Politik, es geht um das Schicksal unserer Kinder und Enkel auf der ganzen Erde.

KASTEN 1974

Fritz Kasten, *Über den Energiehaushalt der Erdatmosphäre.* [Physikalische Blätter 30 \(1974\), ii, 53–63.](#)

Die umfassende Bedeutung der Energie haben die Physikalischen Blätter schon häufig behandelt. Dieses Wort ist ja nicht nur ein grundlegender physikalischer Begriff sondern darüber hinaus die Bezeichnung für eine Sache, deren Bedeutung um so mehr in das allgemeine Bewußtsein rückt, als die Beschaffung teurer und schwieriger wird. Ist diese Beschaffung vornehmlich eine Frage der Technik, des Geldes und der Politik, so steht dahinter doch noch eine physikalische Barriere, die kaum überschreitbar ist: Fast alle vom Menschen künstlich freigesetzte Energie findet sich früher oder später entsprechend dem 2. Hauptsatz in der Lufthülle der Erde als Wärme wieder, und deren Abstrahlungsfähigkeit ist begrenzt. Mit dem folgenden Beitrag beginnen wir eine Reihe von Aufsätzen, die sich näher mit dieser Problematik beschäftigt.

Kultur

DE VOOGT 2013

Alex de Voogt, Anne-Elizabeth Dunn-Vaturi & Jelmer W. Eerkens, *Cultural transmission in the ancient Near East: twenty squares and fifty-eight holes*. [Journal of Archaeological Science 40 \(2013\), 1715–1730](#).

Board games have a wide and complex distribution in the ancient world. Two board games from antiquity that were transmitted across the borders of empires and city states and played for nearly two millennia show only minor changes in the appearance of the board. This lack of branching for antique board games can be explained by the abstract characteristics of the games and the dominance of certain cultures in antiquity. A historical analysis of their transmission process supports this hypothesis.

Keywords: Board game | Antiquity | Diffusion | Egypt | Mesopotamia | Anatolia | Levant | Iran

GIBBONS 2013

Ann Gibbons, *How Sweet It Is: Genes Show How Bacteria Colonized Human Teeth*. [science 339 \(2013\), 896–897](#).

“This is the first record of how we’ve upset the bacterial system in the mouth,” over thousands of years, says molecular evolutionist Alan Cooper of the University of Adelaide in Australia, lead author of a report published this week in *Nature Genetics*. “The modern mouth is like a landscape nuked with a herbicide, with invasive weeds jumping into vacant niches.”

Methoden

ATKINSON 2013

Quentin D. Atkinson, *The descent of words*. [PNAS 110 \(2013\), 4159–4160](#).

Until now, most computational models of vocabulary evolution have ignored information on the sounds of specific words, preferring simpler models of the gain and loss of cognates through time. However, this relies on existing cognate judgments from expert linguists, discards useful information in the source data, and cannot provide insight into the process of sound change.

Bouchard-Côté et al. bring evolutionary modeling and historical linguistics one step closer by developing a probabilistic model of sound change that automates the process of ancestral state reconstruction and cognate assignment directly from vocabulary data. Previous attempts to solve this problem have been restricted to small datasets, limiting the power and utility of the methods. Others have sought to quantify language diversification by using simple edit distances, but these efforts lack any explicit model of change or the ability to infer ancestral forms or cognates.

BOUCHARD-CÔTÉ 2013

Alexandre Bouchard-Côté, David Hall, Thomas L. Griffiths & Dan Klein, *Automated reconstruction of ancient languages using probabilistic models of sound change*. [PNAS 110 \(2013\), 4224–4229](#).

One of the oldest problems in linguistics is reconstructing the words that appeared in the protolanguages from which modern languages evolved. Identifying the

forms of these ancient languages makes it possible to evaluate proposals about the nature of language change and to draw inferences about human history. Proto-languages are typically reconstructed using a painstaking manual process known as the comparative method. We present a family of probabilistic models of sound change as well as algorithms for performing inference in these models. The resulting system automatically and accurately reconstructs protolanguages from modern languages. We apply this system to 637 Austronesian languages, providing an accurate, large-scale automatic reconstruction of a set of protolanguages. Over 85 % of the system’s reconstructions are within one character of the manual reconstruction provided by a linguist specializing in Austronesian languages. Being able to automatically reconstruct large numbers of languages provides a useful way to quantitatively explore hypotheses about the factors determining which sounds in a language are likely to change over time. We demonstrate this by showing that the reconstructed Austronesian protolanguages provide compelling support for a hypothesis about the relationship between the function of a sound and its probability of changing that was first proposed in 1955.
ancestral | computational | diachronic

CARLETON 2013

W. Chris Carleton, James Conolly & Mark Collard, *Corporate kin-groups, social memory, and “history houses”? A quantitative test of recent reconstructions of social organization and building function at Çatalhöyük during the PPNB*. [Journal of Archaeological Science](#) **40** (2013), 1816–1822.

It has been argued that the corporate kin-group was the main form of socio-economic organization at the Turkish site of Çatalhöyük during the Pre-Pottery Neolithic B (PPNB). This hypothesis is linked to a claim of long-term repetitive patterning in the use of household space. Çatalhöyük’s corporate kin-groups, it is suggested, would have been maintained by social memory, and social memory would have been created by the repeated rebuilding of houses with the same floor plan and by the burial of important members of the corporate kin-groups under house floors. This hypothesis been taken up by a number of authors in recent years. However, it is not clear how much confidence should be invested in the hypothesis as the use of household space at Çatalhöyük during the PPNB has not been subject to formal evaluation. With this in mind, we carried out a study in which we examined the relationship between continuity in house floor plans and the percentage of houses that contain burials. To assess the co-variation between these variables, we developed a GIS-based method of quantifying house wall continuity, and then subjected the resulting index and a number of other variables, including the percentage of houses that contain burials, to factor analysis. The results of the analyses do not support the hypothesis. The house-wall continuity index and the percentage of houses that contains burials load on different factors, which indicates that they do not co-vary through time. This is contrary to the predictions of the corporate kingroup hypothesis. Thus, claims that during the PPNB Çatalhöyük’s occupants formed corporate kin groups that were maintained by social memory and “history houses” should be curtailed and interpretations built on this hypothesis should be viewed with suspicion.

Keywords: Çatalhöyük | Pre-Pottery Neolithic B | Corporate kin-group | Social memory | Factor analysis | Spatial analysis

KÖNIG 1975

Volker König, *Kernphysik als Hilfsmittel in der Archäologie*. [Physikalische Blätter](#) **31** (1975), iii, 104–114.

SAN MILLÁN 2013

Marta San Millán, Carme Rissech & Daniel Turbón, *A test of Suchey-Brooks (pubic symphysis) and Buckberry-Chamberlain (auricular surface) methods on an identified Spanish sample: paleodemographic implications*. *Journal of Archaeological Science* **40** (2013), 1743–1751.

Forensic Anthropology and Bioarchaeology studies depend critically on the accuracy and reliability of age-estimation techniques. In this study we have evaluated two age-estimation methods for adults based on the pubic symphysis (Suchey-Brooks) and the auricular surface (Buckberry-Chamberlain) in a current sample of 139 individuals (67 women and 72 men) from Madrid in order to verify the accuracy of both methods applied to a sample of innominate bones from the central Iberian Peninsula. Based on the overall results of this study, the Buckberry-Chamberlain method seems to be the method that provides better estimates in terms of accuracy (percentage of hits) and absolute difference to the chronological age taking into account the total sample. The percentage of hits and mean absolute difference of the Buckberry-Chamberlain and Suchey-Brooks methods are 97.3% and 11.24 years, and 85.7% and 14.38 years, respectively. However, this apparently greater applicability of the Buckberry-Chamberlain method is mainly due to the broad age ranges provided. Results indicated that Suchey-Brooks method is more appropriate for populations with a majority of young individuals, whereas Buckberry-Chamberlain method is recommended for populations with a higher percentage of individuals in the range 60–70 years. These different age estimation methodologies significantly influence the resulting demographic profile, consequently affecting the biological characteristics reconstruction of the samples in which they are applied.

Keywords: Age estimation for adults | Paleodemography | Pubic symphysis | Auricular surface

Neolithikum

CHI 2013

Zhang Chi & Hsiao-chun Hung, *Jiahu 1: earliest farmers beyond the Yangtze River*. *Antiquity* **87** (2013), 46–63.

The authors summarise the latest evidence for the introduction of rice cultivation into northern China, and show that it most probably began there in the early seventh millennium BC as a result of influence or migration from the Yangtze Valley.

This observation could be important if we wish to ask why such a high percentage of morphologically domesticated rice occurred initially in the Jiahu and Baligang sites. Stress factors would have enhanced any behavioural tendencies towards increasing investment in cultivation, and the very process of moving wild rice up to and beyond its natural range may have been fundamental for the process of morphological domestication, since backcrossing with wild forms would have been restricted. Humans could therefore have selected, consciously or unconsciously, for increasing percentages of non-shattering panicles over time.

Keywords: China, seventh millennium BC, Yellow River, Huai River, Hanshui River, Yangtze River, Jiahu, Baligang, rice

LESPEZ 2013

Laurent Lespez et al., *The lowest levels at Dikili Tash, northern Greece: A missing link in the Early Neolithic of Europe*. *Antiquity* **87** (2013), 30–45.

Laurent Lespez, Zoï Tsirtsoni, Pascal Darcque, Haïdo Koukouli-Chryssanthaki, Dimitra Malamidou, René Treuil, Robert Davidson, Georgia Kourtessi-Philippakis & Christine Oberlin

The discovery of Early and Middle Neolithic layers at the base of the tell at Dikili Tash puts an end to the long debate about the start of permanent settlements in Greek Eastern Macedonia and provides some interesting clues about the processes of establishment of a new way of life in local conditions (Lichter 2005; Efstratiou 2007; Kotsakis 2007). The area is no longer a 'blank space' in the distribution maps of the Aegean and European Early Neolithic (Figure 8). Evidence from Dikili Tash seems to reinforce the hypothesis of an east-west spread of the Neolithic through north-western Anatolia and the north Aegean, bringing at the same time an important re-adjustment to the chronology of events. Ongoing excavations in the site should allow checking and further refining of this scenario.

Keywords: Greece, Macedonia, Early Neolithic, tell settlement, coring

Physik

CASIMIR 1981

H. B. G. Casimir, *Die Bedeutung des Stern-Gerlach-Experimentes für die Entwicklung der Quantentheorie*. [Physikalische Blätter 37 \(1981\), iii, 57–58](#).

Fasse ich jetzt vorläufig zusammen: Der Stern-Gerlach-Versuch:

- zeigt die Existenz eines atomaren magnetischen Momentes;
- zeigt die Existenz von permanenten diskreten Zuständen;
- beweist die Realität der Richtungsquantelung;
- antizipiert den Elektronenspin;
- gibt eine Grundlage für die Theorie des Paramagnetismus;
- ist ein Musterbeispiel einer Messung in quantenmechanischem Sinne.

HERMANN 1974

Armin Hermann, *Lichtenberg als akademischer Lehrer*. [Physikalische Blätter 30 \(1974\), vii, 324–327](#).

Story or Book

KUSIMBA 1997

Chapurukha M. Kusimba, *The Culture and Technology of African Iron Production*. [American Anthropologist 99 \(1997\), 437–438](#).

The Culture and Technology of African Iron Production, Peter R Schmidt, ed. Gainesville: University of Florida Press, 1996. 338 pp.

Scholarship has since revealed that much of Africa's development has been indigenous. The same cannot be said of studies of metallurgy in Africa. Perhaps because the subject concerns more recent historical developments that are important to present-day Africans, the foreign and indigenous influences on African metallurgy are often debated with great emotion.

This is by far the best edited volume compiled to date on preindustrial African ironworking. Schmidt has brought together seasoned Iron Age Africanists with diverse research interests to produce a volume that is both interdisciplinary and representative of the cultural and technical diversity across Africa. The inclusion of field photographs, maps, tables, and photomicrographs enhances the book to make it more valuable to historians of technology, metallurgists, Africanist historians,

art historians, ethnohistorians, and Iron Age archaeologists worldwide. It is very clear that we have not heard the last word on preheating, but with this publication many notions about African creativity may be laid to rest.

RUNCIMAN 2013

W.G. Runciman, *Lessons from Our Elders*. [science 339 \(2013\), 907](#).

The World Until Yesterday: What Can We Learn from Traditional Societies? by Jared Diamond. Viking, New York, 2012. 543 pp. \$36, C\$38. ISBN 9780670024810. Allen Lane, London. £20. ISBN 9780713998986.

Much of the evidence for Diamond's conclusions is frankly anecdotal. He is not concerned with either the underlying process or the detailed mechanisms of cultural and social evolution, but only with the traits of traditional societies that he thinks could be imitated by state societies to the latter's benefit.

Different readers will have different opinions about both the originality (or, some will say, banality) of the recommendations and about the prospect (or, some will say, unlikelihood) of their being put into effect.