Liste erstellt am 2012-10-26

Literatur

Afrika

Connah 2001
: Graham Connah, *African civilizations, An archaeological perspective*. (Cambridge ²2001).

Aktuell

Cho 2012
: Adrian Cho, *Supersolidity Shot Down By Its Own Discoverer*. science **338** (2012), 25–26.
[The] notion [of supersolidity] may sound fanciful, but decades earlier, physicists had used the same technique to prove that liquid helium can flow without resistance, a quantum-mechanical phenomenon known as superfluidity. Some theorists had predicted something similar might happen in solid helium. Kim and Chan reported signs of flow in pure solid helium in 2004 in a subsequent paper in Science.
Those results were controversial from the start. Perfect crystalline helium shouldn't flow, some theorists argued, and experiments soon showed that the supposed flow appeared only in crystals riddled with atomic-scale defects.

Klimek 2012
: Peter Klimek, Yuri Yegorov, Rudolf Hanel & Stefan Thurner, *Statistical detection of systematic election irregularities*. PNAS **109** (2012), 16469–16473.
Democratic societies are built around the principle of free and fair elections, and that each citizen's vote should count equally. National elections can be regarded as large-scale social experiments, where people are grouped into usually large numbers of electoral districts and vote according to their preferences. The large number of samples implies statistical consequences for the polling results, which can be used to identify election irregularities. Using a suitable data representation, we find that vote distributions of elections with alleged fraud show a kurtosis substantially exceeding the kurtosis of normal elections, depending on the level of data aggregation. As an example, we show that reported irregularities in recent Russian elections are, indeed, well-explained by systematic ballot stuffing. We develop a parametric model quantifying the extent to which fraudulent mechanisms are present. We formulate a parametric test detecting these statistical properties in election results. Remarkably, this technique produces robust outcomes with respect to the resolution of the data and therefore, allows for cross-country comparisons.
democratic decision making | voter turnout | statistical model | electoral district data

Lavner 2012
: Justin A. Lavner, Jill Waterman & Letitia Anne Peplau, *Can Gay and Lesbian Parents Promote Healthy Development in High-Risk Children Adopted From Foster Care?* American Journal of Orthopsychiatry **82** (2012), 465–472.
Adoption is known to promote cognitive and emotional development in children from foster care, but policy debates remain regarding whether children adopted by gay and

lesbian parents can achieve these positive outcomes. This study compared the cognitive development and behavior problems at 2, 12, and 24 months postplacement of 82 high-risk children adopted from foster care in heterosexual and gay or lesbian households. On average, children in both household types showed significant gains in cognitive development and maintained similar levels of behavior problems over time, despite gay and lesbian parents raising children with higher levels of biological and environmental risks prior to adoptive placement. Results demonstrated that high-risk children show similar patterns of development over time in heterosexual and gay and lesbian adoptive households.

Mervis 2012

Jeffrey Mervis, *U.S. Study Shows Unconscious Gender Bias in Academic Science*. science **337** (2012), 1592.

The participants-tenured or tenure-track faculty members in the departments of biology, chemistry, and physics-were significantly more likely to hire the man, pay him a higher salary, and see him as more worthy of mentoring. That bias was equally strong among female and male scientists, and did not vary by age, race, or discipline.

Moss-Racusin 2012

Corinne A. Moss-Racusin, John F. Dovidio, Victoria L. Brescoll, Mark J. Graham & Jo Handelsman, *Science faculty's subtle gender biases favor male students*. PNAS **109** (2012), 16474–16479.

Despite efforts to recruit and retain more women, a stark gender disparity persists within academic science. Abundant research has demonstrated gender bias in many demographic groups, but has yet to experimentally investigate whether science faculty exhibit a bias against female students that could contribute to the gender disparity in academic science. In a randomized double-blind study (n = 127), science faculty from research-intensive universities rated the application materials of a student-who was randomly assigned either a male or female name-for a laboratory manager position. Faculty participants rated the male applicant as significantly more competent and hireable than the (identical) female applicant. These participants also selected a higher starting salary and offered more career mentoring to the male applicant. The gender of the faculty participants did not affect responses, such that female and male faculty were equally likely to exhibit bias against the female student. Mediation analyses indicated that the female student was less likely to be hired because she was viewed as less competent. We also assessed faculty participants' preexisting subtle bias against women using a standard instrument and found that preexisting subtle bias against women played a moderating role, such that subtle bias against women was associated with less support for the female student, but was unrelated to reactions to the male student. These results suggest that interventions addressing faculty gender bias might advance the goal of increasing the participation of women in science.

diversity | lifestyle choices | science education | science workforce

Rautman 2012

Alison E. Rautman, *What I learned from my experience as editor of American Antiquity (2009–2012)*. SAA Archaeological Record **12** (2012), iv, 11–13.

I found that the single-most common problem that authors have involves connecting theory and data. One must tell the reader what those general expectations are. One must then articulate how archaeological expectations were generated, or in some other way explicitly make the link between the ideas and the information being presented.

Reviewers seem to appreciate an introduction that provides an overview of the ideas and theoretical framework that the author will be using, the ideas the author will be testing,

and (importantly) a preview of the results. Reviewers expect to see these same concepts repeated (with greater elaboration) as they read the manuscript. The introduction is also the place where authors should set out the parameters of the study: that is, what they hope to accomplish, and what they do NOT plan to address. These parameters give the reviewer and future readers a more accurate sense of what information is forthcoming, and what information is not going to be presented.
Reviewers seem to appreciate a fairly short conclusion, which re-caps concepts from the "Introduction," but without adding anything new and surprising. In fact, the most common revision that I recommend to authors involved "front-loading" text from the "Discussion" or "Conclusion" (where the author originally placed it) into the "Introduction" or "Background" (where the reviewer expected to find it).

Tallal 2012

Paula Tallal, *Improving neural response to sound improves reading*. PNAS **109** (2012), 16406–16407.

Cross-linguistic studies have shown that children with dyslexia are universally impaired in acquiring phonological awareness skills (17). Children who have inconsistent physiological response to the rapidly changing acoustic waveform of speech will have great difficulty establishing consistent and reliable neural representations of phonemes. As a consequence, they will struggle with the phonological awareness skills they need to break the code for reading. Hornickel et al. (2) suggest that assistive listening devices and other forms of auditory training enhance the signal-to-noise ratio and, in turn, increase the consistency of neural responses to the acoustics of speech. In this way auditory interventions give dyslexic children an opportunity to receive a reliable acoustic signal from which they can learn how to listen and modulate their attention to focus on the speech signal at precisely the level they need to learn to read.

Anthropologie

Gopnik 2012

Alison Gopnik, *Scientific Thinking in Young Children: Theoretical Advances, Empirical Research, and Policy Implications*. science **337** (2012), 1623–1627.

New theoretical ideas and empirical research show that very young children's learning and thinking are strikingly similar to much learning and thinking in science. Preschoolers test hypotheses against data and make causal inferences; they learn from statistics and informal experimentation, and from watching and listening to others. The mathematical framework of probabilistic models and Bayesian inference can describe this learning in precise ways. These discoveries have implications for early childhood education and policy. In particular, they suggest both that early childhood experience is extremely important and that the trend toward more structured and academic early childhood programs is misguided.

Hornickel 2012

Jane Hornickel, Steven G. Zecker, Ann R. Bradlow & Nina Kraus, *Assistive listening devices drive neuroplasticity in children with dyslexia*. PNAS **109** (2012), 16731–16736.

Children with dyslexia often exhibit increased variability in sensory and cognitive aspects of hearing relative to typically developing peers. Assistive listening devices (classroom FM systems) may reduce auditory processing variability by enhancing acoustic clarity and attention. We assessed the impact of classroom FM system use for 1 year on auditory neurophysiology and reading skills in children with dyslexia. FM system use reduced the variability of subcortical responses to sound, and this improvement was linked to

concomitant increases in reading and phonological awareness. Moreover, response consistency before FM system use predicted gains in phonological awareness. A matched control group of children with dyslexia attending the same schools who did not use the FM system did not show these effects. Assistive listening devices can improve the neural representation of speech and impact reading-related skills by enhancing acoustic clarity and attention, reducing variability in auditory processing.

Shimelmitz 2011

Ron Shimelmitz, Ran Barkai & Avi Gopher, *Systematic blade production at late Lower Paleolithic (400–200 kyr) Qesem Cave, Israel*. Journal of Human Evolution **61** (2011), 458–479.

Qesem Cave is assigned to the Acheulo-Yabrudian cultural complex of the late Lower Paleolithic period. The 7.5 m deep stratigraphic sequence is dated to 400–200 ka (thousands of years ago). It is mostly attributed to the Amudian blade-dominated industry, one of the earliest blade production technologies in the world. In this paper, we present the results of a detailed study of five Amudian assemblages from Qesem Cave and suggest two trajectories for the production of blades at the site. We argue that the reduction sequences of blades at Qesem Cave represent an innovative and straightforward technology aimed at the systemic and serial production of predetermined blanks. We suggest that this predetermined blank technology shows planning and intensity that is not significantly different from Middle Paleolithic Mousterian technological systems. Furthermore, this well-organized serial manufacture of cutting implements mainly for butchering might indicates that a significant change in human behavior had taken place by the late Lower Paleolithic period.

Keywords: Levant | Lower Paleolithic | Amudian | Laminar items

Bibel

Faust 2012

Avraham Faust, *Did Eilat Mazar find David's palace?* Biblical Archaeology Review **38** (2012), v, 47–70.

If one accepts the historicity of the Biblical description of David's conquest of Jerusalem, even in its most general outlines, it is quite clear in light of the above dating that the complex was constructed in the period before this, and prior to the establishment of David's capital in Jerusalem.

But if one wishes to end on a more optimistic note, we may suggest-at least to those who think King David existed-that it is quite possible that in an earlier period, the structure built by the Biblical Jebusites in Iron Age I served as David's palace.

Biologie

Orozco-terWengel 2012

Pablo Orozco-terWengel, Martin Kapun, Viola Nolte, Robert Kofler, Thomas Flatt & Christian Schlötterer, *Adaptation of Drosophila to a novel laboratory*. Molecular Ecology **21** (2012), 4931–4941.

The genomic basis of adaptation to novel environments is a fundamental problem in evolutionary biology that has gained additional importance in the light of the recent global change discussion. Here, we combined laboratory natural selection (experimental evolution) in Drosophila melanogaster with genome-wide next generation sequencing of DNA pools (Pool-Seq) to identify alleles that are favourable in a novel laboratory

environment and traced their trajectories during the adaptive process. Already after 15 generations, we identified a pronounced genomic response to selection, with almost 5000 single nucleotide polymorphisms (SNP; genome-wide false discovery rates $< 0.005\,\%$) deviating from neutral expectation. Importantly, the evolutionary trajectories of the selected alleles were heterogeneous, with the alleles falling into two distinct classes: (i) alleles that continuously rise in frequency; and (ii) alleles that at first increase rapidly but whose frequencies then reach a plateau. Our data thus suggest that the genomic response to selection can involve a large number of selected SNPs that show unexpectedly complex evolutionary trajectories, possibly due to nonadditive effects.
Keywords: adaptation, laboratory evolution, selective trajectories

Datierung

Gopher 2010

A. Gopher, A. Ayalon, M. Bar-Matthews, R. Barkai, A. Frumkin, P. Karkanas, R. Shahack-Gross, *The chronology of the late Lower Paleolithic in the Levant based on U–Th ages of speleothems from Qesem Cave, Israel.* Quaternary Geochronology **5** (2010), 644–656.

We present here the results of a U–Th dating project at Qesem Cave, a Middle Pleistocene, late Lower Paleolithic site in Israel. It provides 54 new MC-ICP-MS U–Th ages for speleothems from the cave. The results indicate that human occupation started sometime between ≈420 and 320 ka and ended between 220 and 194 ka. A survey of dates from culturally similar sites in the Levant indicates that the general range of ca. 400–ca. 200 ka is an appropriate estimate for the life span of the Acheulo-Yabrudian Cultural Complex (AYCC).
Keywords: Qesem Cave | Israel | Lower Paleolithic | Acheulo-Yabrudian complex | U-series dating

Grabung

Murphy 2012

Sara Murphy (Hrsg.), *James, Brother of Jesus, The Forgery Trial of the Century.* (Washington 2012).

Despite all that I have said, the inscriptions I have discussed will be considered forgeries in the public mind for at least a generation-never mind the acquittal of the defendants and the evidence of authenticity. The reason is that these inscriptions have been declared forgeries, supposedly unanimously, by two committees of the IAA. The fact is that these committees chaired by deputy IAA director Uzi Dahari were set-ups.
The IAA knew where it wanted to go-and it got there. It enlisted Yuval Goren to lead a pack of scholars who "went along." Father Joseph Fitzmyer, probably the world's leading expert on ancient Aramaic (the language of the Jesus inscription) provides the details. The committees included people who had previously said the inscriptions were probably forgeries, but not anyone on the other side. So, for example, André Lemaire was not included. Neither were the geologists from the Geological Survey of Israel who had found the inscriptions authentic. Many of the IAA committee members conceded that their expertise was not in areas that would allow them to opine on authenticity, but the IAA treated their demurrers as votes for forgery. The demurrers were treated as "yes" votes when the IAA announced the "unanimous" decision of their committee.

Klima

Hvistendahl 2012

Mara Hvistendahl, *Roots of Empire*. science **337** (2012), 1596–1599.

A climate history project in Mongolia is charting the unexpected conditions that may have propelled the rise of Genghis Khan

A preliminary climate record that Hessl and Pederson constructed from the 17 trees suggests that in the period from 1211 to 1230 C.E., when Genghis Khan was in his heyday, Mongolia enjoyed abundant rainfall: apparently more than in any other 20-year stretch over the past 900 years. The steppe's grasses and other vegetation would have flourished, allowing the Mongols to raise more livestock and giving them what Hessl calls "more horsepower" for conquests.

Arnold J. Toynbee proposed that a "push exerted by the climate of the steppes"-implicitly an inhospitable climate-may have propelled nomadic armies like the Mongols to venture out for resources. "That was not a picture supported by any data," Di Cosmo cautions. But the idea persisted because of historical records showing a 12th- and 13th century drought in neighboring China and Tibet, and because history was largely written by the people the Mongols conquered.

Stanford 2011

J. D. Stanford, R. Hemingway, E. J. Rohling, P. G. Challenor, M. Medina-Elizalde & A. J. Lester, *Sea-level probability for the last deglaciation: A statistical analysis of far-field records*. Global and Planetary Change **79** (2011), 193–203.

GloPlaCha79-193-Supplement1.pdf, GloPlaCha79-193-Supplement2.pdf, GloPlaCha79-193-Supplement3.pdf

Pulses of ice-sheet meltwater into the world ocean during the last deglaciation are of great current interest, because these large-scale events offer important test-beds for numerical models of the responses of ocean circulation and climate to meltwater addition. The largest such event has become known as meltwater pulse (mwp) 1a, with estimates of about 20 mof sea-level rise in about 500 years. A secondmeltwater pulse (mwp1b) has been inferred from some sea-level records, but its existence has become debated following the presentation of additional records. Even the use of the more ubiquitous mwp-1a in modelling studies has been compromised by debate about its exact age, based upon perceived discrepancies between far-field sea-level records. It is clear that an objective investigation is needed to determine to what level inferred similarities and/or discrepancies between the various deglacial sea-level records are statistically rigorous (or not). For that purpose, we present a Monte Carlo style statistical analysis to determine the highest-probability sea-level history from six key far-field deglacial sea-level records, which fully accounts for realistic methodological and chronological uncertainties in all these records, and which is robust with respect to removal of individual component datasets. We find that sea-level rise started to accelerate into the deglaciation from around 17 ka BP. Within the deglacial rise, there were two distinct increases; one at around the timing of the Bølling warming (14.6 ka BP), and another, much broader, event that just post-dates the end of the Younger Dryas (11.3 ka BP). We interpret these as mwp-1a and mwp-1b, respectively. We find that mwp-1a occurred between 14.3 ka BP and 12.8 ka BP. Highest rates of sea-level rise occurred at ≈13.8 ka, probably (67 % confidence) within the range of 100-130 cm/century, although values may have been as high as 260 cm/ century (99 % confidence limit). Mwp-1b is robustly expressed as a broad multi-millennial interval of enhanced rates of sea-level rise between 11.5 ka BP and 8.8 ka BP, with peak rates of rise of up to 250 cm/ century (99 % confidence), but with a probable rate of 130-150 cm/century (67 % confidence) at around 9.5 ka BP. When considering the 67 % probabi-

lity interval for the deglacial sea-level history, it is clear that both mwp-1a and -1b were relatively subdued in comparison to the previously much higher rate estimates.
Keywords: meltwater pulse | sea-level | deglaciation

Kultur

Erdal 2012

Yılmaz Selim Erdal & Ömür Dilek Erdal, *Organized violence in Anatolia: A retrospective research on the injuries from the Neolithic to Early Bronze Age*. International Journal of Paleopathology (2012), preprint, 1–15. DOI:10.1016/j.ijpp.2012.09.014.

The question of the presence of organized violence in the Neolithic settlements in Middle East has been debated. This paper presents possible examples of organized violence from the Neolithic period, representing early examples of settlements in Anatolia, to the Early Bronze Age, which provides the early instances of central authority. Most injuries detected among Neolithic populations in Anatolia have been associated with daily activities. Although individual examples of interpersonal violence exist among Neolithic and Chalcolithic populations in Anatolia, but they are far from representing organized violence. On the other hand the Early Bronze Age populations present clear evidence of perimortem wounds, mass burials, high frequency of cranial fractures, walls surrounding cities, and metal weapons in Anatolia. This suggests an increased evidence of organized violence in EBA Anatolia. Based on bioarchaeological data, it is concluded that violence in these settlements resulted from one or more ecological and social factors. However, each settlement might have peculiar reason for fighting.
Keywords: Warfare | Massacre | Trauma | Interpersonal violence | Turkey

Rathje 1971

William L. Rathje, *The Origin and Development of Lowland Classic Maya Civilization*. American Antiquity **36** (1971), 275–285.

The southern Maya lowlands present a largely redundant environment which does not possess the potential for major internal symbiotic regions or for irrigation. In fact, the interior of this region is uniformly deficient in resources essential to the efficiency of every individual household engaged in the Mesoamerican agricultural subsistence economy: mineral salt, obsidian for blades, and hard stone for grinding. Yet, in the core of this rain forest region, the basic elements of Classic Maya civilization first coalesced. A model involving methods of procuring and distributing the resources necessary to the efficiency of an agricultural subsistence economy explains the loci of lowland Classic Maya development and the order in which these loci developed. This model can also be applied to the Olmec civilization.

Wright 1975

Henry T. Wright & Gregory A. Johnson, *Population, Exchange, and Early State Formation in Southwestern Iran*. American Anthropologist **77** (1975), 267–289.

Several widely discussed single-variable explanations of the origin of the state are tested using data from Southwestern Iran. These data demonstrate that increasing population or increasing inter-regional trade alone cannot explain the appearance of specialized governments during the fourth millennium B.C. More complex types of explanation are suggested, and methods for testing them are outlined.

Kupfer

Alimov 1998

Kamildžan Alimov et al., *Prähistorischer Zinnbergbau in Mittelasien, Vorbericht der Kampagne 1997*. Eurasia Antiqua **4** (1998), 137–199.
Kamildžan Alimov, Taškent, Nikolaus Boroffka, Berlin, Mira Bubnova, Dušanbe, Jurij Burjakov, Samarkand, Jan Ciemy, Bochum, Jussuf Jakubov, Dušanbe, Joachim Lutz, Hermann Parzinger, Berlin, Ernst Pernicka, Freiberg, Viktor Radililovskij, Dušanbe, Vladimir Ruzanov, Timur Širinov, Samarkand, Dimitri Staršinin, Dušanbe und Gerd Weisgerber, Bochum

Bayley 2007

Justine Bayley & Thilo Rehren, *Towards a functional and typological classification of crucibles*. In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy, Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005*. (London 2007), 46–55.
Two approaches to crucibles classification are outlined. The first is based on technical attributes such as form, fabric and thermal properties. The second is based on functional categories: namely cementation, assaying and metal melting. In both classifications there is considerable variability within each of the defined groups – much of it due to technological and cultural choices. The identification of technical attributes can often be carried out in the field or museum, while identification of function frequently requires more invasive instrumental analysis. Despite their differences in approach, both typologies end up with similar groupings, reflecting a strong relationship between functional requirements and technical attributes of crucibles.
Keywords: crucible, metalworking, ceramic, melting, cementation, assaying.

Boroffka 2002

Nikolaus Boroffka, Jan Cierny, Joachim Lutz, Hermann Parzinger, Ernst Pernicka & Gerd Weisgerber, *Bronze Age Tin from Central Asia: Preliminary Notes*. In: Katie Boyle, Colin Renfrew & Marsha Levine (Hrsg.), *Ancient interactions: east and west in Eurasia*. (Cambridge 2002), 135–159.
One of the most important results of the project is the first proof of Bronze Age tin mining and processing in Central Asia, which owing to the very considerable size of the deposits is of potential importance far beyond this limited region. This is obvious from the fact that even the small seasonal settlement in Karnab-Sichkonchi shows evidence of long-distance contacts.
A second, perhaps not so spectacular result is the observation that the Andronovo culture is so tightly associated with mining and metallurgy that its characterization as a culture of purely pastoral nomads should probably be revised. They (or their products) repeatedly appear in direct contact with the highly urbanized sedentary civilizations of the Margiana or Bactria (e. g. Vinogradova 1994; Avanessova 1997), often as metallurgists of quite developed capabilities. In the northern steppes their mining and metallurgical activities of considerable scale have long been known (Kuzmina 1991; Kadyrbaev & Kurmankulov 1992; Avanessova 1996; Parzinger in press, all with further literature). During our recent research in Uzbekistan and Tajikistan all investigated mining sites have again been associated with Andronovo, even though settlements of other, so-called sedentary cultures were present in the surroundings as well (Isakov 1981; 1991; Lyonnet 1996). While the pastoral component in the economy of the Andronovo tribes, based on settlement

structures and zooarchaeological data, can hardly be contested the idea of pure nomadism does not seem to fit with the extensive mining and metallurgical activities or the long-distance contacts of these same tribes. The fact that the campsite levels in Karnab repeatedly show the same internal organization also indicates a stable social structure. The Bronze Age Andronovo society was probably much more complex and had much more intense long-distance connections than is observable at present based largely on funerary finds.

Bourgarit 2007

David Bourgarit, *Chalcolithic copper smelting*. In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005*. (London 2007), 3–14.

Over the last decade, our understanding of the first copper-smelting processes has considerably evolved, thanks mostly to a dramatic increase in available archaeological and the related archaeometallurgical data. Copper-smelting activities from the Late Neolithic to the very first phases of the Early Bronze Age (EBA) have been discovered and investigated on some 20 archaeological sites located in the Old World, from the Iberian Peninsula to the Iranian plateau. By summing up most recent studies done in France by the author and by reviewing the published literature concerning the other areas, the present paper reports and discusses the prominent technical features of what may be called, for the sake of convenience, the 'chalcolithic' copper-smelting processes. The main finding of this survey is the lack of technological consistency encountered at the beginning of copper extractive metallurgy, including quite technically advanced processes; this supports the considerable variety in copper-production modes reported by others.

Keywords: copper, smelting, chalcolithic, Bronze Age, slag, archaeometallurgy, process reconstruction.

Craddock 2007

Paul Craddock, Nigel Meeks & Simon Timberlake, *On the Edge of success: the scientific examination of the products of the Early Mines Research Group smelting experiments*. In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005*. (London 2007), 37–45.

This paper records some of the scientific work carried out on the products of the smelting experiments described in the previous paper, and discusses some of the implications of the results. The products of some of the experiments which were only partially successful reveal stages in the process that are not normally preserved in more successful smelts. The sparcity of smelting remains from the British Isles in the Bronze Age means that it is often necessary to argue from negative evidence; indeed making metal while leaving no durable evidence was one of the principal objectives of the experiments. The smelting of the oxidised copper and tin ores were successful in this, but the smelting of the more prevalent mixed copper-iron-sulphide ores has proved more difficult. This suggests that very different extraction strategies may have been used in the British Isles, at least during the Bronze Age.

Keywords: smelting, experiment, copper, bronze, tin, Bronze Age, Britain, Ireland, sulphide, oxide, smelting, slag, matte, analysis.

Hauptmann 2007

Andreas Hauptmann & Irmtrud Wagner, *Prehistoric copper production at Timna: thermoluminescence (TL) dating and evidence from the East.* In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005.* (London 2007), 67–75.

A major question in archaeometallurgy concerns the field evidence for the beginnings of metallurgical techniques. It has been suggested that at Timna, Israel, the earliest evidence for copper production is represented by the Chalcolithic site 39 and the Late Neolithic site F2 (6th millennium BC). This model is compared with other examples of social and spatial patterns of prehistoric metallurgy. Results of thermoluminescence (TL) dating are presented for site F2 which show in fact that it dates to the Late Bronze Age. Evidence for extensive copper smelting in the middle of the 3rd millennium BC comes from two sites near Aqaba: Tell Magass and Tell Hujayrat al-Ghuzlan; (self-fluxing) copper ores were imported from Timna and smelted inside these villages. The hinterland of these sites was probably Egypt.

Keywords: prehistoric, Timna, copper, smelting, thermoluminescence dating, TL, mining, metallurgy, Tell Magass, Tell Hujayrat al-Ghuzlan, Yotvata, Israel, Egypt.

La Niece 2007

Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005.* (London 2007).

Mighall 2007

T. M. Mighall, Simon Timberlake, S. Singh & M. Bateman, *Records of palaeo-pollution from mining and metallurgy as recorded by three ombrotrophic peat bogs in Wales, UK.* In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005.* (London 2007), 56–64.

This paper presents geochemical data from three ombrotrophic peat bogs located close to two former lead mines, Craig y Mwyn and Nantymwyn in North and South Wales, UK respectively. The research objective was to reconstruct a record of the pollution generated by activities associated with mining preserved in each bog. Radiocarbon dates from each site confirm that the peat provides a record of pollution since prehistoric times. Small lead peaks appear in the peat record at dates corresponding to prehistoric and possibly the Roman and Dark Ages at Nantymwyn, but mining did not commence on a continuous basis until the 18th century AD. At Craig y Mwyn, lead pollution occurs during the Roman period and, hitherto, provides the best estimate for the start of mining at the site. These examples demonstrate the usefulness of palaeo-pollution records from peat bogs to reconstruct the origins and history of metal mining in Britain.

Keywords: peat, palaeo-pollution, lead, zinc, mining, Wales.

Müller 2007

Roland Müller, Gert Goldenberg, Martin Bartelheim, Michael Kunst & Ernst Pernicka, *Zambujal and the beginnings of metallurgy in southern*

Portugal. In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005*. (London 2007), 15–26.
This paper presents the first results of a larger research project investigating the innovation of copper metallurgy at the Chalcolithic fortified settlement of Zambujal, the neighbouring settlements of Penedo and Fornea, and in southern Portugal in general. Copper casting and working took place at all three sites. Copper smelting is more difficult to identify; the first traces of this metallurgical process may be found at Zambujal House V. The correlation between certain artefact types and the arsenic content indicates a conscious selection of the metal produced. Lead isotope analyses point towards the so-called Ossa Morena Zone as the most likely source of the copper where surveys have revealed a series of mines which were most probably exploited in prehistory. Hence, at this stage of research it seems that the copper from Zambujal was imported over a distance of at least 100 km, either as metal or as ore mineral.
Keywords: Copper Age, innovation, metallurgy, slag, crucible, melting, smelting, lead isotope analyses, mining.

Timberlake 2007

Simon Timberlake, *The use of experimental archaeology/archaeometallurgy for the understanding and reconstruction of Early Bronze Age mining and smelting technologies*. In: Susan La Niece, Duncan Hook & Paul Craddock (Hrsg.), *Metals and Mines, Studies in Archaeometallurgy*, *Metallurgy: A Touchstone for Cross-cultural Interaction, conference at the British Museum, London, 28–30 April 2005*. (London 2007), 27–36.
Some 20 years of archaeological investigation have now firmly established the evidence for prehistoric copper mining in Britain; this includes some 12 sites worked for copper sulphide minerals (chalcopyrite) and carbonate ores, most of these between 2100 and 1600 BC. With few artefacts or work areas surviving, interpreting the technology of primitive mining presents a challenge to the archaeologist. Experimental work has been particularly useful here, allowing us to understand the process of firesetting, the use and hafting of stone implements, and to predict the discovery of organic remains such as antler tools within the excavations on Copa Hill (Cwmystwyth, Wales).
In the absence of archaeological evidence, experiments in smelting tin (cassiterite) and copper (malachite and chalcopyrite) ores are now helping us to reconstruct some of the most rudimentary types of furnaces. A recent attempt to smelt chalcopyrite within an open furnace pit at Butser Iron Age Farm appears to show the process of copper prill formation taking place at temperatures of less than 1200 °C under poorly reducing conditions; tantalising evidence perhaps of how copper may have been extracted from a problematical sulphide ore at the beginning of the Early Bronze Age. The scientific examination of the products of these smelting experiments is described in the following paper (pp. 37–45).
Keywords: Early Bronze Age, UK, experimental, mining, smelting, tin, copper, chalcopyrite.

Neolithikum

Zheng 2012

Hong-Xiang Zheng, Shi Yan, Zhen-Dong Qin & Li Jin, *MtDNA analysis of global populations support that major population expansions began before Neolithic Time*. Scientific Reports **2** (2012), 745. DOI:10.1038/srep00745.

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Agriculture resulted in extensive population growths and human activities. However, whether major human expansions started after Neolithic Time still remained controversial. With the benefit of 1000 Genome Project, we were able to analyze a total of 910 samples from 11 populations in Africa, Europe and Americas. From these random samples, we identified the expansion lineages and reconstructed the historical demographic variations. In all the three continents, we found that most major lineage expansions (11 out of 15 star lineages in Africa, all autochthonous lineages in Europe and America) coalesced before the first appearance of agriculture. Furthermore, major population expansions were estimated after Last Glacial Maximum but before Neolithic Time, also corresponding to the result of major lineage expansions. Considering results in current and previous study, global mtDNA evidence showed that rising temperature after Last Glacial Maximum offered amiable environments and might be the most important factor for prehistorical human expansions.