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References

Anthropologie

Lovejoy 1981

C. Owen Lovejoy, *The Origin of Man*. science **211** (1981), 341–350.

Five characters separate man from other hominoids-a large neocortex, bipedality, reduced anterior dentition with molar dominance, material culture, and unique sexual and reproductive behavior. Evidence provided by the fossil record, primate behavior, and demographic analysis shows that the traditional view that early human evolution was a direct consequence of brain expansion and material culture is incorrect, and that the unique sexual and reproductive behavior of man may be the sine qua non of human origin.

Marlowe 2001

Frank Marlowe, *Male Contribution to Diet and Female Reproductive Success among Foragers*. Current Anthropology **42** (2001), 755–760.

Since male contribution to diet is only a proxy for actual provisioning, these results do not confirm the paternal-investment theory of pair bonding. It is conceivable that females could obtain the same benefit from male contribution to diet by trading sex for food at every opportunity as they could from bonding and trading paternity confidence for long-term provisioning. These result do, however, show that male contribution to diet has important consequences for forager women—a necessary condition for the paternal-investment theory. Women begin reproducing later than chimpanzee females and have only a slightly longer reproductive span but manage to exceed them in fertility through earlier weaning (Hawkes et al. 1998) and shorter interbirth intervals (Kaplan et al. 2000). This analysis suggests that one way they achieve this is through male provisioning. While the paternal-investment theory has usually emphasized the benefit of reduced offspring mortality, the real benefit of male provisioning among foragers is increased fertility.

Warnberg 2023

Ole Warnberg, Corina Knipper, Brigitte Röder, Guido Lassau Norbert Spichtig, Peter C. Ramsl, Friederike Novotny Maria Teschle, *Missing Lactase Persistence in Late Iron Age Central Europe*. Archäologisches Korrespondenzblatt **52** (2023), 225–248.

Being able to digest milk sugar beyond the age of weaning is a rather new trait in humans. The calculated age of the responsible mutations largely coincides with the introduction of dairy farming. Recent European populations exhibit a gradient of high levels of lactose tolerance in the north and lower numbers in the south. Lactase persistence is believed to have co-evolved with farming or livestock keeping as a selective advantage. Palaeogenetic data of prehistoric individuals, however, have so far not provided any clear evidence that the spread of the lactase persistence mutation predates the Roman period, while persistence increases throughout the Middle Ages. In contrast, evidence of dairy processing reaches back to the introduction of farming in the Neolithic. In this paper, we investigate lactase persistence in the La Tène period of the European Iron Age. 39 individuals from Austria, France, Hungary and Switzerland have been successfully genotyped for the two single nucleotide polymorphisms (SNPs) 13910C/T and 22018G/A, which

are associated with lactose tolerance. None of those individuals carries the homozygous variant of either of the two SNPs, while four individuals are heterozygous at 22018G/A. This implies that during the Iron Age processed dairy products like cheese and yoghurt still represented the common supply of milk-derived nutrients while fresh milk played only a minor role in the regions studied here. The population-wide spread of the lactose tolerance trait in Europe therefore clearly post-dates the Iron Age.

Die Fähigkeit, auch nach der Säuglingszeit Milchzucker zu verdauen, ist ein relativ neues Merkmal beim Menschen. Das errechnete Alter der verantwortlichen Mutation stimmt weitgehend mit der Einführung der Milchwirtschaft überein. Moderne europäische Bevölkerungen zeigen ein Gefälle für die Laktosetoleranz, mit hohen Werten im Norden und niedrigeren im Süden des Kontinents. Die Laktasepersistenz soll als selektiver Vorteil zusammen mit der Landwirtschaft bzw. Viehhaltung entstanden sein. Allerdings fehlen bislang paläogenetische Daten prähistorischer Individuen dafür, dass die Ausbreitung der Mutation für Laktasepersistenz bereits vor der römischen Epoche eintrat, während sie im Mittelalter ständig zunahm. Im Gegensatz dazu reichen die Belege für eine Milchverarbeitung bis zur Einführung der Landwirtschaft im Neolithikum zurück. In der vorliegenden Studie wird die Laktasepersistenz während der Latènezeit der europäischen Eisenzeit untersucht. Dazu wurde der Genotyp von 39 Individuen aus Österreich, Frankreich, Ungarn und der Schweiz erfolgreich auf die zwei mit Laktosetoleranz assoziierten SNPs 13910C/T und 22018G/A analysiert. Bei keinem der Individuen fand sich eine homozygote Variante eines der beiden SNPs, dagegen tragen vier Individuen heterozygot das Allel 22018G/A. Dies deutet darauf hin, dass während der Eisenzeit verarbeitete Milchprodukte wie Käse oder Joghurt noch immer die Hauptquelle milchbasierter Nährstoffe darstellten, während Frischmilch in den hier untersuchten Regionen wohl nur eine untergeordnete Rolle spielte. Die bevölkerungsübergreifende Verbreitung der Laktosetoleranz fand demnach erst nach der Eisenzeit statt.

Keywords: Europe | Late Iron Age | aDNA | lactose intolerance | lactase persistence | palaeogenetics

Keywords: Europa | Jüngere Eisenzeit | aDNA | Laktoseintoleranz | Laktasepersistenz | Paläogenetik

Ole Warnberg, Corina Knipper, Brigitte Röder, Guido Lassau Norbert Spichtig, Peter C. Ramsl, Friederike Novotny Maria Teschler-Nicola, Stéphane Marion, Martin Schönfelder Christopher F. E. Pare, Anna Szécsényi-Nagy, Jörg Schibler Stephan Schiffels, Kurt W. Alt, Sandra L. Pichler

Islam

Ehrman 1995

Bart D. Ehrman & Michael W. Holmes (Hrsg.), *The Text of the New Testament in Contemporary Research, Essays on the Status Quaestionis*. New Testament Tools, Studies and Documents 42 (Leiden ²2013).

Metzger 1968

Bruce M. Metzger (Hrsg.), *Historical and Literary Studies, Pagan, Jewish, and Christian*. New Testament Tools and Studies 8 (Leiden 1968).

Metzger 1980
Bruce M. Metzger (Hrsg.), *New Testament Studies, Philological, Versional, and Patristic*. New Testament Tools and Studies 10 (Leiden 1980).

Klima

Scafetta 2023
Nicola Scafetta, *Empirical assessment of the role of the Sun in climate change using balanced multi-proxy solar records*. Geoscience Frontiers **14** (2023), 101650, 1–19.

The role of the Sun in climate change is hotly debated. Some studies suggest its impact is significant, while others suggest it is minimal. The Intergovernmental Panel on Climate Change (IPCC) supports the latter view and suggests that nearly 100 % of the observed surface warming from 1850–1900 to 2020 is due to anthropogenic emissions. However, the IPCC's conclusions are based solely on computer simulations made with global climate models (GCMs) forced with a total solar irradiance (TSI) record showing a low multi-decadal and secular variability. The same models also assume that the Sun affects the climate system only through radiative forcing – such as TSI – even though the climate could also be affected by other solar processes. In this paper I propose three "balanced" multi-proxy models of total solar activity (TSA) that consider all main solar proxies proposed in scientific literature. Their optimal signature on global and sea surface temperature records is assessed together with those produced by the anthropogenic and volcanic radiative forcing functions adopted by the CMIP6 GCMs. This is done by using a basic energy balance model calibrated with a differential multi-linear regression methodology, which allows the climate system to respond to the solar input differently than to radiative forcings alone, and to evaluate the climate's characteristic time-response as well. The proposed methodology reproduces the results of the CMIP6 GCMs when their original forcing functions are applied under similar physical conditions, indicating that, in such a scenario, the likely range of the equilibrium climate sensitivity (ECS) could be 1.4 .C to 2.8 .C, with a mean of 2.1 .C (using the HadCRUT5 temperature record), which is compatible with the low-ECS CMIP6 GCM group. However, if the proposed solar records are used as TSA proxies and the climatic sensitivity to them is allowed to differ from the climatic sensitivity to radiative forcings, a much greater solar impact on climate change is found, along with a significantly reduced radiative effect. In this case, the ECS is found to be 0.9–1.8 .C, with a mean of around 1.3 C. Lower ECS ranges (up to 20 %) are found using HadSST4, HadCRUT4, and HadSST3. The result also suggests that at least about 80 % of the solar influence on the climate may not be induced by TSI forcing alone, but rather by other Sun-climate processes (e.g., by a solar magnetic modulation of cosmic ray and other particle fluxes, and/or others), which must be thoroughly investigated and physically understood before trustworthy GCMs can be created. This result explains why empirical studies often found that the solar contribution to climate changes throughout the Holocene has been significant, whereas GCM-based studies, which only adopt radiative forcings, suggest that the Sun plays a relatively modest role. Appendix A (Supplementary Data Text) includes the proposed TSA records.

Keywords: Solar activity changes | Solar variability climatic impact | Global climate change and modeling | Equilibrium climate sensitivity

Kupfer

Nessel 2019

Bianka Nessel, Gerhard Brügmann, Daniel Berger, Carolin Frank, Janeta Marahrens and Ernst Pernicka, *Bronze production and tin provenance - new thoughts about the spread of metallurgical knowledge*. In: Xose-Lois Armada, Mercedes Murillo-Barroso & Mike Charlton (Hrsg.), *Metals, Minds and Mobility*, *Integrating Scientific Data With Archaeological Theory*. (Oxford 2019), 67–84.

Tin bronze metallurgy may have been introduced and disseminated over the Near East and Europe from several different places and in different ways. In the Near East, the direction of the diffusion of tin bronze metallurgy is dif. cult to determine because of the long chronological stages in the 3rd millennium BC, and the slow typological development of bronzes, which makes it hard to distinguish early from more developed technological stages. Moreover, the possible importance of Anatolia for the transfer of technology in northern and southern directions can not be precisely determined. The same applies for connections between the North Pontic region and the Caucasus with Anatolia and the Near East. Neither the present set of tin isotopic analyses of ores nor of the archaeological objects allow a determination of the tin sources used to manufacture Mesopotamian bronzes from the second half of the 3rd millennium BC.

Metallzeiten

Ochsenschlager 1998

Edward Ochsenschlager, *Life on the Edge of the Marshes*. Expedition **40** (1998), ii, 29–39.

In 1968, archaeologists digging at the mound of al-Hiba in Iraq were struck by the fact that the people living in the surrounding area depended on many of the same resources, and seemed to use them in the same way, as the people who had lived there in the 3rd millennium BC. So while archaeological excavations continued, they initialed an ethnographic study of the modern villages around the mound (Fig. 1). The ethno-archaeology project was carried out under my direction and lasted twenty years. Its goal was to cast light on the use of locally available raw materials, and on the function and manufacturing technology of the same or similar artifacts in antiquity.

The materials we focused on were mud or clay, reeds, wood, cattle, and sheep. We eventually added bitumen—a natural tarlike hydrocarbon—to the list because it appeared so often in conjunction with wood, reeds, and mud in the villages, as well as in the archaeological record. There was abundant evidence that many of the details of village life had parallels in the archaeological record. We hoped that knowing how people in the present day made and used the objects they needed for survival could help us make sense of the isolated bits of archaeological evidence and weave them into a coherent tapestry of ancient life.

Methoden

Inskip 2019

Sarah Inskip, Christiana L. Scheib, Anthony Wilder Wohns, Xiangyu Ge, Toomas Kivisild & John Robb, *Evaluating macroscopic sex es-*

timation methods using genetically sexed archaeological material, *The medieval skeletal collection from St John's Divinity School, Cambridge*. American Journal of Physical Anthropology **168** (2019), 340–351.

Objectives: In tests on known individuals macroscopic sex estimation has between 70 % and 98 % accuracy. However, materials used to create and test these methods are overwhelming modern. As sexual dimorphism is dependent on multiple factors, it is unclear whether macroscopic Methods have similar success on earlier materials, which differ in lifestyle and nutrition. This research aims to assess the accuracy of commonly used traits by comparing macroscopic sex estimates to genetic sex in medieval English material.
Materials and Methods: Sixty-six individuals from the 13th to 16th century Hospital of St John the Evangelist, Cambridge, were assessed. Genetic sex was determined using a shotgun approach. Eighteen skeletal traits were examined, and macroscopic sex estimates were derived from the os coxae, skull, and os coxae and skull combined. Each trait was tested for accuracy to explore sex estimates errors.
Results: The combined estimate (97.7 %) outperformed the os coxae only estimate (95.7 %), which outperformed the skull only estimate (90.4 %). Accuracy rates for individual traits varied: Phenice traits were most accurate, whereas supraorbital margins, frontal bossing, and gonial flaring were least accurate. The preauricular sulcus and arc compose showed a bias in accuracy between sexes.
Discussion: Macroscopic sex estimates are accurate when applied to medieval material from Cambridge. However, low trait accuracy rates may relate to differences in dimorphism between the method derivative sample and the St John's collection. Given the sex bias, the preauricular sulcus, frontal bossing, and arc compose should be reconsidered as appropriate traits for sex estimation for this group.

Keywords: genetic sex | medieval | preauricular sulcus | sex estimate accuracy

Pape 2023

Eleonore Pape & Nicola Ialongo, *Error or Minority? The Identification of Non-binary Gender in Prehistoric Burials in Central Europe*. Cambridge Archaeological Journal (2023), preprint, 1–21. DOI:10.1017/S0959774323000082.

CAJ2023.07-Pape-Supplement1.pdf, CAJ2023.07-Pape-Supplement2.xlsx

Gender is under focus in prehistoric archaeology, with traditional binary models being questioned and alternatives formulated. Quantification, however, is generally lacking, and alternative models are rarely tested against the archaeological evidence. In this article, we test the binary hypothesis of gender for prehistoric Central Europe based on a selection of seven published burial sites dating from the Early Neolithic to the Late Bronze Age. Results show that the binary model holds for the majority of individuals, but also supports the existence of non-binary variants. We address such variants as 'minorities' rather than 'exceptions', as only the former can be integrated in interpretive models. However, we also find that quantification is undermined by several sources of error and systematic bias.

Pargeter 2023

Justin Pargeter, Alex Mackay, Christian Tryon & Manuel Will et al., *Replicability in Lithic Analysis*. American Antiquity **88** (2023), 163–186.

The ubiquity and durability of lithic artifacts inform archaeologists about important dimensions of human behavioral variability. Despite their importance, lithic artifacts can be problematic to study because lithic analysts differ widely in their theoretical approaches and the data they collect. The extent to which

differences in lithic data relate to prehistoric behavioral variability or differences between archaeologists today remains incompletely known. We address this issue with the most extensive lithic replicability study yet, involving 11 analysts, 100 unmodified flakes, and 38 ratio, discrete, and nominal attributes. We use mixture models to show strong inter-analyst replicability scores on several attributes, making them well suited to comparative lithic analyses. Based on our results, we highlight 17 attributes that we consider reliable for compiling datasets collected by different individuals for comparative studies. Demonstrating this replicability is a crucial first step in tackling more general problems of data comparability in lithic analysis and lithic analyst's ability to conduct large-scale meta-analyses.

Keywords: stone tools | attribute analysis | inter-analyst replicability

Justin Pargeter, Alison Brooks, Katja Douze, Metin Eren, Huw S. Groucutt, Jessica McNeil, Alex Mackay, Kathryn Ranhorn, Eleanor Scerri, Matthew Shaw, Christian Tryon, Manuel Will & Alice Leplongeon

Sprachlehre

Farmer 2004

Steve Farmer, Richard Sproat & Michael Witzel, *The Collapse of the Indus-Script Thesis*, *The Myth of a Literate Harappan Civilization*. Electronic | Vedic Studies **11** (2004), ii, 19–58.

Archaeologists have long claimed the Indus Valley as one of the four literate centers of the early ancient world, complete with long texts written on perishable materials. We demonstrate the impossibility of the lost-manuscript thesis and show that Indus symbols were not even evolving in linguistic directions after a minimum of 600 years of use. Suggestions as to how the symbols were used are noted in nonlinguistic sign systems in the Near East that served key religious, political, and social functions without encoding speech or serving as formal memory aids. Evidence is reviewed that the Harappans' lack of a true script may have been tied to the role their symbols played in controlling large multilinguistic populations; parallels are drawn to the later resistence of Brahminical elites to the literate encoding of Vedic sources and to similar phenomena in esoteric traditions outside South Asia. Discussion is provided on academic and political forces that helped sustain the Indus-script myth for over 130 years and on ways in which our findings transform current views of the Indus Valley and of writing in ancient civilizations in general.

Rao 2009

Rajesh P. N. Rao, Nisha Yadav, Mayank N. Vahia, Hrishikesh Joglekar, R. Adhikari & Iravatham Mahadevan, *Entropic Evidence for Linguistic Structure in the Indus Script*. science **324** (2009), 1165.

We found that the conditional entropy of Indus inscriptions closely matches those of linguistic systems and remains far from nonlinguistic systems throughout the entire range of token set sizes.

Rao 2010

Rajesh P. N. Rao, *Probabilistic Analysis of an Ancient Undeciphered Script*. IEEE Computer **43** (2010), iv, 76–80.

Probabilistic methods for analyzing sequences are providing new insights into the 4,000-year-old undeciphered script of the Indus civilization.

Several key features of the Indus script suggest that it represents language. [...] Such attributes are hard to reconcile with the thesis that the script merely represents religious or political symbols.

Entropic similarity to natural languages by itself is not sufficient to prove that the Indus script is linguistic. However, given that it exhibits other key features of linguistic scripts as enumerated above, this similarity increases the probability in a Bayesian sense that the Indus script represents language.

Rao 2015

Rajesh P. N. Rao, Rob Lee, Nisha Yadav, Mayank Vahia, Philip Jonathan & Pauline Ziman, *On statistical measures and ancient writing systems*. Language **91** (2015), e198–e205.

An article published in Language (Sproat 2014a) questions our findings on the Indus script and Pictish symbols published in the journals Science (Rao et al. 2009a), PNAS (Rao et al. 2009b), IEEE Computer (Rao 2010), and the Proceedings of the Royal Society (Lee et al. 2010a,b). Sproat's article does not accurately present our methods and findings, and its conclusions are based on what appears to be a misunderstanding of our proposed approach. For example, the article's Results on entropic measures seem to favor, rather than contradict, the inductive hypothesis that the Indus script may represent writing. The article selects results to draw a particular set of Conclusions and convey a specific viewpoint. In light of these issues, we stand by our original findings.

Sproat 2014

Richard Sproat, *A statistical comparison of written language and nonlinguistic symbol systems*. Language **90** (2014), 457–481.

Are statistical methods useful in distinguishing written language from nonlinguistic symbol systems? Some recent articles (Rao et al. 2009a, Lee et al. 2010a) have claimed so. Both of these previous articles use measures based at least in part on bigram conditional entropy, and subsequent work by one of the authors (Rao) has used other entropic measures. In both cases the authors have argued that the methods proposed either are useful for discriminating between linguistic and nonlinguistic systems (Lee et al.), or at least count as evidence of a more 'inductive' kind for the status of a system (Rao et al.).

Using a larger set of nonlinguistic and comparison linguistic corpora than were used in these and other studies, I show that none of the previously proposed methods are useful as published. However, one of the measures proposed by Lee and colleagues (2010a) (with a different cut-off value) and a novel measure based on repetition turn out to be good measures for classifying symbol systems into the two categories. For the two ancient symbol systems of interest to Rao and colleagues (2009a) and Lee and colleagues (2010a)—Indus Valley inscriptions and Pictish symbols, respectively—both of these measures classify them as nonlinguistic, contradicting the findings of those previous works.*

Keywords: symbol systems | nonlinguistic symbols | writing systems | statistical models of language

Sproat 2015

Richard Sproat, *On misunderstandings and misrepresentations, A reply to Rao et al.* Language **91** (2015), e206–e208.

When Language forwarded me the reply from Rao, Lee, and colleagues (2015; henceforth Rao et al.) to my article in Language 90.2 (Sproat 2014), I was offered an opportunity to respond, but I was also instructed to be brief. Fortunately, it

is easy to be brief since I believe my article lays out the case very well, and the reader need only look there and at Rao et al.'s original articles to see that I did not misunderstand or misrepresent their views, as they claim.

Zadok 1984

Ran Zadok, *The Origin of the Name Shinar*. Zeitschrift für Assyriologie **74** (1984), 240–244.

Sanhara/Sin'ar was the usual name for Babylonia among the peoples dwelling west of the Euphrates during the latter half of the second millennium B.C. when Babylonia was under Kassite rule. Only documents of Hittite rulers, who were allies of the Kassites, and two Amarna letters concerning commerce with Babylonia do employ the official Kassite name Karduniaä for Babylonia.

Typologically, this can be analogous to JAram. Ty(y)'‘ "Arabs", Latin Graeci, Graii "Greeks" and French Allemands "Germans".

The Sumerian Interpretation of the name Shinar causes an historical problem. The difficulty is why this geographical term first appears äs late äs the latter half of the second millennium B.C., long after the disappearance of the Sumerians. My proposal concerning the origin of the name Shinar eliminates this problem.

Story or Book

Cooper 1984

Jerrold S. Cooper, *Inanna: Queen of Heaven and Earth*. Biblical Archaeologist **47** (1984), iii, 188–189.

Inanna: Queen of Heaven and Earth, by Diane Wolkstein and Samuel Noah Kramer, xix + 227 pp., New York: Harper & Row, 1983; $7.95 (Paper), $16.95 (Cloth).

Is this a woman who can serve "as inspiration, guide and model – for ourselves as well as for our children" (page xv)? The book under review was conceived by Wolkstein, a "story-teller and folklorist," to present the goddess for just such a purpose, and if this purpose has been served, it is only by presenting a very incomplete portrait of the goddess Inanna.

Wolkstein also misses another unpleasant aspect of Inanna that is evident in some of the texts she has selected. Inanna is power hungry and manipulative. Her acquisition of the me – the norms or powers of civilization – from the drunk Enki is but one example in Sumerian mythology of her unwillingness to be satisfied with the already considerable power with which she was originally endowed. And an unbiased reading of Inanna's Descent can only lead to the conclusion that Inanna went to the netherworld because, in the text's words, she "craved the Great Below," in addition to the "Great Above" which was already hers, and not, as Wolkstein suggests, in search of knowledge, or, as she suggests a few pages later, to be with her sister Ereshkigal who "had gone into labor and needed to be reborn".

The contributions by Kramer, the Nestor of Sumerian studies, are up to his usual standard. For those wanting a more scholarly presentation of the translations, or who are perhaps worried about how Wolkstein may have altered the texts, Kramer provides convenient notes on his sources and on what changes were made for this edition. His introduction to the Sumerians is the best ten-page "all you've ever wanted to know about the Sumerians" one could ask for, and the story of his recovery of a Sumerian myth is an excellent window laypersons on the arduous tasks of the philologist.

Wolkstein's commentary on the Inanna stories and hymns is unfortunately filled with misinterpretations and misunderstandings of things Sumerian, couched in a

vocabulary heavily influenced by neo-Jungians, the human potential movement, and pop structuralism.

Despite all the criticisms above, the book is not without merit. My teen-age daughter, who has for most of her life avoided anything smacking of Sumer, unwittingly picked the book up and couldn't put it down. Neither could her friends, with whom she shared it.

Hallo 1984

William W. Hallo, *Inanna: Queen of Heaven and Earth*. Biblical Archaeologist **47** (1984), iii, 188.

Inanna: Queen of Heaven and Earth, by Diane Wolkstein and Samuel Noah Kramer, xix + 227 pp., New York: Harper & Row, 1983; $7.95 (Paper), $16.95 (Cloth).

It is the thesis of this book that Sumerian religious beliefs included a self-contained, coherent, and consistent conception of the pantheon. This thesis, which runs counter most previous views on the subject, is not explicitly stated; rather, it is implicitly defended and illustrated by appeal to the example of Inanna.

It can easily be faulted. It should not be regarded as an authoritative presentation of the material in question: omits whole compositions – indeed whole cycles of compositions, such as the three great hymns to Inanna tributed to the princess-poetess Enheduanna-which are equally valid for an assessment of the goddess; it rearranges the material in a way which, even with the help of the "Notes on the textual editing" (pages 205-207), makes collation with the originals difficult.

And, finally, though it is hard to accept her "Interpretations of Innana's stories and hymns" (pages 136-173), the principal author has alerted us to the possibilities of a holistic, folkloristic reassessment of Sumerian poetry. Perhaps such a reassessment will eventually help win overdue recognition for what is at once the world's earliest literary corpus and the latest to be recovered.