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References

Afrika

Humphris 2016

Jane Humphris & Chris Carey, *New methods for investigating slag heaps, Integrating geoprospection, excavation and quantitative methods at Meroe, Sudan.* Journal of Archaeological Science **70** (2016), 132–144.

This paper describes a multifaceted approach to the investigation of iron slag heaps, focusing on one of the slag heaps at the Royal City of Meroe in Sudan. This study marries together geoprospection data (gradiometry and electrical resistivity transects), topographic data and quantitative excavation data, to provide an analysis and comparison of the total volume, slag component and slag composition of a slagheap. Significantly, the results demonstrate the limitations of using a topographic only model, but also demonstrate how volumetric modelling must be integrated within quantitative characterisation of slagheap composition. In this case, quantitative sampling of the slag deposits revealed the composition of the slag assemblage was dominated by a newly defined category of slag which has major implications for reconstructing iron technologies in the Meroitic civilisation. This research Highlights the dangers of applying simplistic models and basic investigative strategies to iron slag heaps and furthers the debate on applying volumetric modelling and excavation sampling to unexcavated areas of the finite and important resource of archaeometallurgical deposit sequences.

Keywords: Iron slag | Sudan | Geoprospection | Quantitative sampling | Volumetric modelling | Meroitic civilisation

Mohamed-Ali 2012

M. A. Mohamed-Ali, T. Herbich, K. Grzymski & R. Hobbs, *Magnetic Gradient and Electrical Resistivity Tomography Surveys in Meroe, the Capital City of the Kush Kingdom, Sudan.* Archaeological Prospection **19** (2012), 59–68.

One of the most important archaeological sites in Sudan is Meroe, capital city of the kingdom of Kush (800 BC to AD 400). The site is located in the Nile valley, about 200 km northeast of Khartoum. The most prominent feature among the ruins of Meroe is the Royal City: a stone-walled enclosure containing remains of palaces, governmental buildings and temples. The current study presents the results of integrated magnetic gradient and electrical resistivity tomography surveys in unexplored and partly explored areas in the central part of the site and in the southern part of the Royal City. The main enclosure wall, remains of sandstone and red-brick buildings, and a number of small archaeological structures have been traced on magnetic maps. The extent of buildings, identified by magnetic survey, has been complemented by information on the depth of structures provided by electrical resistivity tomography. The geophysical results have been partly verified through excavation.

Keywords: Magnetic survey | electrical resistivity tomography | archaeological prospection | Meroe | Kush | Sudan

Aktuell

Kaiser 2021

Jocelyn Kaiser, *DNA test to predict odds of severe COVID-19 draws scrutiny*. science **372** (2021), 1139. DOI:10.1126/science.372.6547.1139.

Ledford 2021

Heidi Ledford, *Six Months, 1.7 Billion Doses, What we've learnt about Covid vaccines*. nature **594** (2021), 164–167.

As countries race to administer coronavirus vaccines, researchers are analysing the effects while a rash of viral variants raises concern.

Marshall 2021

Michael Marshall, *Four Key Questions About Long Covid*. nature **594** (2021), 168–170.

It is now clear that many people who become infected with SARS-CoV-2 develop a lingering disorder that can last months — but many key mysteries remain unsolved.

Vogel 2021

Gretchen Vogel, *Mixing vaccines may boost immune responses*. science **372** (2021), 1138. DOI:10.1126/science.372.6547.1138.

Findings from combination studies support measures to stretch supplies, avoid side effects.

Archäologie

Conard 2015

Nicholas J. Conard, *Cultural Evolution During the Middle and Late Pleistocene in Africa and Eurasia*. In: W. Henke & I. Tattersall (Hrsg.), *Handbook of Paleoanthropology*. (Berlin 2015), 2465–2508.

This chapter examines large-scale patterns of behavioral change that are often viewed as indicators for the advent of cultural modernity and developed symbolic communication. Using examples from Africa and Eurasia, the chapter reviews patterns of lithic and organic technology, subsistence, and settlement as potential indicators of modern behavior. These areas of research produce a mosaic picture of advanced technology and behavioral patterns that come and go during the late Middle and Late Pleistocene. Based on these data the emergence of modern behavior, as seen in the archaeologically visible material record, appears to be gradual and heterogeneous in space and time. During the early part of the Late Pleistocene, personal ornaments in the form of perforated seashells are documented in southwestern Asia and northern and southern Africa. By about 40,000 years ago (Ka), a diverse array of personal ornaments are documented across the Old World in association with Neanderthals and anatomically modern humans. These include both modified natural objects and fully formed ornaments. The timing and distribution of the appearance of figurative art, mythical imagery, and other classes of artifacts including musical instruments point to a more punctuated development of fully modern behavior during the middle of the Late Pleistocene and certainly no later than 40 Ka. Due perhaps in part to the long and intense history of research,

much, but by no means all, of the relevant data come from Europe. Early figurative art from the Aurignacian of southwestern Germany, northern Italy, Austria, and southern France provides undisputed evidence for fully developed symbolic communication and behavioral modernity. This chapter also discusses some of the hypotheses for the development and spread of cultural modernity and rejects a strict monogenetic model in favor of a pattern of mosaic polycentric development. This chapter Highlights the need for new refutable, regional and superregional hypotheses for the advent and spread of behavioral modernity.

Haas 1998

Jonathan Haas, *A Brief Consideration of Cultural Evolution, Stages, Agents, and Tinkering – Understanding and explaining complexity across time and cultures*. Complexity **3** (1998), iii, 12–21.

In studying the phenomenon of complexity, it is readily apparent that all human cultures are extraordinarily complex. However, it is also apparent that some cultural systems are more complex than others. Furthermore, it is clear that in the course of human occupation on our planet, cultural systems have evolved from simpler forms to more complex forms—from the small nomadic bands of the Paleolithic past to the large nation-states of the contemporary era. For more than 100 years, anthropologists have sought ways to better understand and explain the evolution of cultural complexity across time and across cultures.

Renfrew 2005

Colin Renfrew & Paul Bahn (Hrsg.), *Archaeology, The Key Concepts*. (London 2005).

Bibel

Dershowitz 2021

Idan Dershowitz, *"Notes on the Orthography of the Shapira Manuscripts: The Forger's Marks", Response to Ronald Hendel*. Zeitschrift für die Alttestamentliche Wissenschaft **133** (2021), 1–2.

A clear distinction must be drawn between the Valediction of Moses as a text and the Shapira fragments as objects. My argument is that the text is pre-Deuteronomic and thus pre-exilic, and as I write in my book, it clearly underwent some updating after its composition. When the manuscripts were inscribed is a much more difficult question to answer in the absence of the artifacts themselves, although my inclination is that they too are pre-exilic.

Onvlee 2009

Ian Onvlee, *Redating the Biblical Divided Kingdom*. (2016).

My solution for dating Solomon's reign and the Divided Kingdom according to the Masoretic Bible is therefore in more than one way solidly based on the Masoretic tradition. The following seven dates result from this solution:
1453t-1452t = 479 years to Solomon's Temple building in the Second month of his year 4 in 974t-973t.
1413t-1412t = Year 1 of the Conquest, but most certainly not the beginning of the Jubilee count.
1407t-1406t = Year 7 of the Conquest, the Division of the Land –The Jubilee count begins (= year 1).

977t-976t = Solomon's Year 1, 390 years before the Destruction of his Temple in 587 BC.
974t-973t = Solomon's Year 4, in which the Temple is built in the Second month, 973 BC.
587t-586t = Destruction of Solomon's Temple (in August ff.), 390 years after solomon's Year 1.
574t-573t = Ezekhiel's Jubilee year (year 1 of the Jubilee cycle). Ezekhiel spoke of 390 years of inequity of Israel, including 40 years of inequity of Judah, leading to the destruction of the First Temple in 587 BC. It thus becomes clear that he was not referring to the beginning of the Divided Kingdom as many assume, but to Solomon, the builder of that Temple. The 40 years then can only refer to 627 BC, Josiah's year 13, when Jeremiah began to speak to the inhabitants of Jerusalem for 23 years (Jeremiah 25:3) until 605 BC inclusive. Apparently Ezekhiel meant that the people did not even listen to the warning signs and the prophecies during the last 40 years. Ezekhiel and Jeremiah are also two highly interconnected biblical sources.

All seven dates above meet all the requirements of the Masoretic tradition, free of error, each being easy to argue for and hard to argue against. All currently propagated dates, even with Young's fix for dating Solomon a year earlier, have no such logic and actually violate the Masoretic tradition. I still need to explain why Solomon's year 4 can only be 974t-973t, but that is not the issue here.

Römer 2021

Thomas Römer, *How "Persian" or "Hellenistic" is the Joseph Narrative?* In: Thomas Römer, Konrad Schmid & Axel Bühler (Hrsg.), *The Joseph Story between Egypt and Israel.* (Tübingen 2021), 35–53.

There are very few things about which scholars agree in regard to the biblical story of Joseph in Gen 37-50. A majority would probably agree that the Joseph story is quite different from the foregoing narratives about Abraham, Isaac, and Jacob, and also that we have here an impressive piece of narrative art and storytelling, as pointed out by Gerhard von Rad but also by the Egyptologist Donald B. Redford: "No piece of prose elsewhere in the Bible can equal the literary standard attained by the Joseph story of Genesis 37-50."

But as soon as the question of the literary unity of the story arises, opinions diverge. Moreover, interpretive positions differ even further when one discusses the reconstruction of the original story and its date and historical setting.

The Joseph narrative, now integrated into Gen 37-50, was originally an independent narrative. It was inserted at the end of Genesis after the integration of the P-texts,82 by redactors who wanted to construct a Hexa- or a Pentateuch and give some space also to a voice of the Diaspora.

The Joseph narrative can be characterized as a "Diaspora novella." Its ideology reflects the situation of the Diaspora as known from the Elephantine texts (double names, intermarriages, etc.). Its author perhaps originated from the North and wanted to show the importance of the Diaspora for "all Israel."

The date of the original narrative can be the late Persian period, and while there are several passages that fit better into a Greek, Ptolemaic context, most of these passages belong to later revisions.

Ventura 2021

Davide Ventura, *The Mesha Stele, A Reappraisal of a Forgery.* unknown (2021), preprint, 1–6. .

The Mesha Stele is widely considered as authentic, and as a cornerstone of the Middle Eastern archeology, especially after Albright's positive assessment in 1945. Here we summarize the perplexing circumstances of its discovery and the incongruities of content pointed out by several authors in the decades following the Stele's discovery. Albright's defense of its authenticity is analyzed and found not conclusive, in light of epigraphic findings subsequent to his work. Therefore, the negative conclusions of the mentioned early authors reacquire their force, and strongly suggest that the Mesha Stele is in fact a parabiblical forgery.

Biologie

Olm 2021

Matthew R. Olm & Justin L. Sonnenburg, *Ancient human faeces and gut microbes of the past*. nature **594** (2021), 182–183.

Appreciation is growing of how our gut microbes shape health and disease. Now, a study of ancient human faeces sheds light on how microbial populations in the gut have changed during the past 2,000 years.

Wibowo 2021

Marsha C. Wibowo et al., *Reconstruction of ancient microbial genomes from the human gut*. nature **594** (2021), 234–239.

n594-0234-Supplement.pdf

Loss of gut microbial diversity1–6 in industrial populations is associated with chronic diseases7, underscoring the importance of studying our ancestral gut microbiome. However, relatively little is known about the composition of pre-industrial gut microbiomes. Here we performed a large-scale de novo assembly of microbial genomes from palaeofaeces. From eight authenticated human palaeofaeces samples (1,000–2,000 years old) with well-preserved DNA from southwestern USA and Mexico, we reconstructed 498 medium- and high-quality microbial genomes. Among the 181 genomes with the strongest evidence of being ancient and of human gut origin, 39 % represent previously undescribed species-level genome bins. Tip dating suggests an approximate diversification timeline for the key human symbiont Methanobrevibacter smithii. In comparison to 789 present-day human gut microbiome samples from eight countries, the palaeofaeces samples are more similar to non-industrialized than industrialized human gut microbiomes. Functional profiling of the palaeofaeces samples reveals a markedly lower abundance of antibiotic-resistance and mucin-degrading genes, as well as enrichment of mobile genetic elements relative to industrial gut microbiomes. This study facilitates the discovery and characterization of previously undescribed gut microorganisms from ancient microbiomes and the investigation of the evolutionary history of the human gut microbiota through genome reconstruction from palaeofaeces.

Marsha C. Wibowo, Zhen Yang, Maxime Borry, Alexander Hübner, Kun D. Huang, Braden T. Tierney, Samuel Zimmerman, Francisco Barajas-Olmos, Cecilia Contreras-Cubas, Humberto García-Ortiz, Angélica Martínez-Hernández, Jacob M. Luber, Philipp Kirstahler, Tre Blohm, Francis E. Smiley, Richard Arnold, Sonia A. Ballal, Sünje Johanna Pamp, Julia Russ, Frank Maixner, Omar Rota-Stabelli, Nicola Segata, Karl Reinhard, Lorena Orozco, Christina Warinner, Meradeth Snow, Steven LeBlanc & Aleksandar D. Kostic

Grabung

Pernicka 2021

Ernst Pernicka et al., *Warum die Himmelsscheibe von Nebra in die Frühbronzezeit datiert, Überblick über die interdisziplinären Forschungsergebnisse.* Jahresschrift für mitteldeutsche Vorgeschichte **98** (2021), 9–61.

Dieser Artikel stellt die leicht erweiterte deutsche Fassung eines zuerst in der "Archaeologia Austriaca" erschienenen Aufsatzes dar: Pernicka u. a. 2020. Insbesondere wird die für ein internationales Publikum weniger interessante gerichtliche Bewertung des Falles ausführlicher behandelt.

Ernst Pernicka, Jörg Adam, Gregor Borg, Gerhard Brügmann, Jan-Heinrich Bunnefeld, Wolfgang Kainz, Mechthild Klamm, Thomas Koiki, Harald Meller, Ralf Schwarz, Thomas Stöllner, Christian-Heinrich Wunderlich und Alfred Reichenberger

Klima

Cheddadi 2021

Rachid Cheddadi, Matthieu Carré, Majda Nourelbait, Louis François, Ali Rhoujjati, Roger Manay, Diana Ochoa & Enno Schefuß, *Early Holocene greening of the Sahara requires Mediterranean winter rainfall.* PNAS **118** (2021), e2024898118.

pnas118-e2024898118-Supplement.pdf

The greening of the Sahara, associated with the African Humid Period (AHP) between ca. 14,500 and 5,000 y ago, is arguably the largest climate-induced environmental change in the Holocene; it is usually explained by the strengthening and northward expansion of the African monsoon in response to orbital forcing. However, the strengthened monsoon in Early to Middle Holocene climate model simulations cannot sustain vegetation in the Sahara or account for the increased humidity in the Mediterranean region. Here, we present an 18,500-y pollen and leaf-wax dD record from Lake Tislit (32° N) in Morocco, which provides quantitative reconstruction of winter and summer precipitation in northern Africa. The record from Lake Tislit shows that the northern Sahara and the Mediterranean region were wetter in the AHP because of increased winter precipitation and were not influenced by the monsoon. The increased seasonal contrast of insolation led to an intensification and southward shift of the Mediterranean winter precipitation system in addition to the intensified summer monsoon. Therefore, a winter rainfall zone must have met and possibly overlapped the monsoonal zone in the Sahara. Using a mechanistic vegetation model in Early Holocene conditions, we show that this seasonal distribution of rainfall is more efficient than the increased monsoon alone in generating a green Sahara vegetation cover, in agreement with observed vegetation. This conceptual framework should be taken into consideration in Earth system paleoclimate simulations used to explore the mechanisms of African climatic and environmental sensitivity.

Keywords: African humid period | green Sahara | Holocene | paleoclimate reconstructions | vegetation model simulations

Significance: Explaining the greening of the Sahara during the Holocene has been a challenge for decades. A strengthening of the African monsoon caused by increased summer insolation is usually cited to explain why the Sahara was vegetated from 14,000 to 5,000 y ago. Here, we provide a unique climate record

of quantified winter, spring, and summer precipitation in Morocco over the past 18,500 y, and numeric simulations, which show that moisture contributions from the Mediterranean Sea and the North Atlantic Ocean in winter, were as important as the expanded summer monsoon for the greening of the Sahara during the African humid period. The findings of this study will help to better understand and simulate climate variability over northern Africa.

Flores 2021

Bernardo M. Flores & Carolina Levis, *Human-food feedback in tropical forests*. science **372** (2021), 1146–1147.

Ancient interaction between humans and edible plants can boost tropical food security.

Kaboth-Bahr 2021

Stefanie Kaboth-Bahr et al., *Paleo-ENSO influence on African environments and early modern humans*. PNAS **118** (2021), e2018277118.

pnas118-e2018277118-Supplement.pdf

In this study, we synthesize terrestrial and marine proxy records, spanning the past 620 ky, to decipher pan-African climate variability and its drivers and potential linkages to hominin evolution. We find a tight correlation between moisture availability across Africa to El Niño Southern Ocean oscillation (ENSO) variability, a manifestation of theWalker Circulation, that was most likely driven by changes in Earth's eccentricity. Our results demonstrate that low-latitude insolation was a prominent driver of pan-African climate change during the Middle to Late Pleistocene. We argue that these low-latitude climate processes governed the dispersion and evolution of vegetation as well as mammals in eastern and western Africa by increasing resource-rich and stable ecotonal settings thought to have been important to early modern humans.

Keywords: African paleoclimate | hominin evolution | Walker and Hadley circulation | orbital forcing

Stefanie Kaboth-Bahr, William D. Gosling, Ralf Vogelsang, André Bahr, Eleanor M. L. Scerri, Asfawossen Asrat, Andrew S. Cohen, Walter Düsing, Verena Foerster, Henry F. Lamb, Mark A. Maslin, Helen M. Roberts, Frank Schäbitz & Martin H. Trauth

Significance: Our results identify the prime driver of climate variation in Africa's low latitudes over the past 620 ky—the key time frame for the evolution of our species. Warming and cooling of the tropical Pacific Ocean paced by insolation changes modulated the tropical Walker circulation, driving opposing wet–dry states in eastern and western Africa. We show that the effects of glacial/interglacial cycles were not the predominant source of environmental change in most of the continent. Africa's environmental patchwork driven by low-latitude climate processes should therefore be a critical component in conceptual models of human evolution and early demography over the past 620 ky.