

## Literatur

### Afrika

BOSTOEN 2013

Koen Bostoen, Rebecca Grollemund & Joseph Koni Muluwa, *Climate-induced vegetation dynamics and the Bantu Expansion, Evidence from Bantu names for pioneer trees (Elaeis guineensis, Canarium schweinfurthii, and Musanga cecropioides)*. [Comptes Rendus Geoscience 345 \(2013\), 336–349.](#)

The present article examines whether Late Holocene climate-induced vegetation changes in the Central African forest block may have facilitated the Bantu Expansion. This is done through a body of evidence that is not commonly used for the reconstruction of vegetation dynamics, i.e. language data. The article focuses on common Bantu vocabulary for three pioneer species abundantly present in the Central African pollen record between ca. 2500 and 2000 BP: *Musanga cecropioides*, *Elaeis guineensis*, and *Canarium schweinfurthii*. The geographical distribution patterns of the vernacular names for these pioneer trees add weight to the hypothesis according to which the rainforest contraction that emerged in the first millennium BC had an impact on the way Bantu languages dispersed.

Keywords: Bantu Expansion | Palaeoclimatic change | Historical linguistics | Lexical reconstruction | *Elaeis guineensis* | *Canarium schweinfurthii* | *Musanga cecropioides*

LÉZINE 2013

Anne-Marie Lézine et al., *Temporal relationship between Holocene human occupation and*. [Comptes Rendus Geoscience 345 \(2013\), 327–335.](#)

Anne-Marie Lézine, Augustin F.-C. Holl, Judicaël Lebamba, Annie Vincens, Chimène Assi-Khaudjis, Louis Février & Émmanuelle Sultan

This paper discusses the relationship between patterns of human settlements and environmental change during the Holocene along the northwestern margins of the equatorial rain forest of central Africa. Palaeoenvironmental data from high-resolution sediment cores from lacustrine deposits, plant macro-remains from forest soils, and archaeological data are harnessed to discuss the differential impact of climate and/or humans on the central African rain forest. It is shown that climate change impacted the rain forest well before the widespread expansion of human settlements all over the study area.

Keywords: Palaeoenvironmental | Pollen analyses | Archaeology | Archaeobotany | Central African rain forest | Holocene

RUSSELL 2014

Thembi Russell, Fabio Silva & James Steele, *Modelling the Spread of Farming in the Bantu-Speaking Regions of Africa, An Archaeology-Based Phylogeography*. [PLoS ONE 9 \(2014\), e87854.](#)  
[DOI:10.1371/journal.pone.0087854.](#)

[pone09-e87854-Supplement.zip](#)

We use archaeological data and spatial methods to reconstruct the dispersal of farming into areas of sub-Saharan Africa now occupied by Bantu language speakers, and introduce a new large-scale radiocarbon database and a new suite of spatial modelling techniques. We also introduce a method of estimating phylogeographic relationships from archaeologically-modelled dispersal maps, with results produced in a format that enables comparison with linguistic and genetic phylogenies. Several hypotheses are explored. The ‘deep split’ hypothesis suggests that an early-branching eastern Bantu stream spread around the northern boundary of the equatorial rainforest, but recent linguistic and genetic work tends not to support this. An alternative riverine/littoral hypothesis suggests that rivers and coastlines facilitated the migration of the first farmers/horticulturalists, with some extending this to include rivers through the rainforest as conduits to East Africa. More recently, research has shown that a grassland corridor opened through the rainforest at around 3000–2500 BP, and the possible effect of this on migrating populations is also explored. Our results indicate that rivers and coasts were important dispersal corridors, but do not resolve the debate about a ‘Deep Split’. Future work should focus on improving the size, quality and geographical coverage of the archaeological 14C database; on augmenting the information base to establish descent relationships between archaeological sites and regions based on shared material cultural traits; and on refining the associated physical geographical reconstructions of changing land cover.

## Aktuell

BRAUN 2014

Hans-Benjamin Braun, Remo Hügli & Laura Heyderman, *Nordpole ohne Südpole*. [Spektrum der Wissenschaft 2014, ii, 48–57](#).

Kann es isolierte magnetische Pole geben? Einige Theoretiker behaupten das, aber kein Experiment hat je den Nachweis erbracht. In einer besonderen Art von Material, dem Spin-Eis, fanden Forscher nun so genannte Quasiteilchen, die sich genau wie die lange gesuchten Monopole verhalten.

PÖPPE 2014

Christoph Pöppe, *Das Schicksal einer Zahlenfolge*. [Spektrum der Wissenschaft 2014, ii, 72–75](#).

Sie ist sehr einfach definiert, springt aber wild und unkontrolliert durch die natürlichen Zahlen: die Collatz-Folge. Bis heute weiß man nicht, ob sie in jedem Einzelfall irgendwann bei der eins ankommt.

THOMAS 2014

Russell C. Thomas, *Does diffusion of horse-related military technologies explain spatiotemporal patterns of social complexity 1500 BCE–AD 1500?* [PNAS 111 \(2014\), E414](#).

TURCHIN 2014

Peter Turchin, Thomas Currie, Edward A. L. Turner & Sergey Gavrillets, *Diffusion of military technologies is a plausible explanation for the evolution of social complexity, 1500 BCE–AD 1500, Reply to Thomas*. [PNAS 111 \(2014\), E415](#).

The core of Thomas’s critique is that our model is “too simple and too abstract”. We, however, see model simplicity as a desirable feature in developing theory that

is both grounded in sociological mechanisms and tested with historical data. Too many previous attempts at theory building in the social sciences have foundered as a result of being highly complex and including in them too many mechanisms. The ability of our simple model to accurately predict data speaks for itself.

## Amerika

### HEIDENREICH 2013

Stephan M. Heidenreich, *Die frühesten Spuren menschlicher Besiedlung des arktischen und subarktischen Nordamerika, Spätpleistozäne Fundstellen in Alaska*. *Archäologisches Korrespondenzblatt* **43** (2013), 449–468.

While the peopling of the Americas is still subject of debate in archaeological research, most scholars agree that its origin can be found in the arctic and subarctic regions of Northeastern Asia and Northwestern America, often referred to as Beringia. Intensive research in recent decades – especially in Alaska – has led to a growing body of evidence for the colonisation of these areas. This paper gives a representative overview of Late Pleistocene stone tool assemblages from Alaska. It appears that instead of a cultural-chronological organisation, functional variability with a diverse system of technological organisation seems a more plausible explanation for the variable composition of these assemblages. Meanwhile, the question of the migration route in the course of the peopling of the Americas must remain open. But this does not deprive the Alaskan record of its general relevance, especially regarding its significance for statements on colonisation processes of Pleistocene hunter-gatherers.

Während die früheste Besiedlung der amerikanischen Kontinente nach wie vor Inhalt der Forschungsdebatte ist, so wird deren Ursprung zumeist in der als Beringia bezeichneten arktischen und subarktischen Region Nordamerikas und Nordostasiens gesucht. Intensive Forschungen der letzten Jahrzehnte – vor allem in Alaska – konnten die Kenntnis der frühesten Besiedlung dieses Raumes erheblich erweitern. Der vorliegende Beitrag gibt einen repräsentativen Überblick über spätpleistozäne Steingeräteinventare Alaskas. Anstelle von kultur-chronologischen Unterschieden erscheint funktionale Variabilität mit einem variablen System technologischer Organisation eine plausible Erklärung für die verschiedenartig zusammengesetzten Inventare zu sein. Die Frage nach dem Ausbreitungsweg der Erstbesiedlung Amerikas muss derweil weiter offenbleiben. Der archäologische Befund Beringias zeigt keine eindeutigen Verbindungen zum kontinentalen Nordamerika. Dies schmälert jedoch keinesfalls die Bedeutung der spätpleistozänen Funde Alaskas, insbesondere aufgrund ihrer Aussagekraft hinsichtlich der Besiedlung zuvor unbewohnter Gebiete durch pleistozäne Jäger und Sammler.

Keywords: North America / USA / Arctic / Subarctic / Palaeolithic / Late Glacial / stone tools

Nordamerika / USA / Arktis / Subarktis / Paläolithikum / Spätglazial / Steingeräte

### ZEDEÑO 2014

Maria Nieves Zedeño, Jesse A. M. Ballenger & John R. Murray, *Landscape Engineering and Organizational Complexity among Late Prehistoric Bison Hunters of the Northwestern Plains*. *Current Anthropology* **55** (2014), 23–58.

CurrAnth55-023-Supplement.pdf

Studies of hunter-gatherer sociopolitical organization consistently exclude terrestrial big-game hunters—pedestrian bison hunters, in particular—from discussions of emerging complexity. To an important extent, this exclusion stems both from the ethology of bison and its consequences for mobile hunters and from the character of their archaeological record, which lacks conventional indicators of organizational complexity such as high-status burials and long-term storage facilities. However, this record exhibits stone architecture of monumental proportions. We argue that evidence of emerging sociopolitical complexity is embodied in the hunters' ability to (1) invest extensively on landscape engineering to amass communal bison wealth for consumption, storage, and exchange, and (2) produce and reproduce ritual wealth among individuals and restricted sectors of the group. Through a multiscale research design that integrates thousands of surface stone features with data recovered from kill site excavation, ethnohistorical records, and Blackfoot traditions, we demonstrate that Late Prehistoric bison hunters of the northwestern Plains endeavored to create conditions for permanence in their hunting territory by strategically emplacing and maintaining hunting facilities. These, in turn, would be used by ensuing generations of culturally related groups for whom the communal hunt was a formal and ritually managed act.

## Anthropologie

CALCAGNO 2012

James M. Calcagno & Agustín Fuentes, *What Makes Us Human? Answers from Evolutionary Anthropology*. [Evolutionary Anthropology](#) **21** (2012), 182–194.

With contributions by: Matt Cartmill, Kaye Brown, Katherine S. Pollard, Robert Sussman, Robert M. Seyfarth, Dorothy L. Cheney, Benjamin Campbell, Sarah Hrdy, Kristen Hawkes, Karen R. Rosenberg, Mary C. Stiner, Steven L. Kuhn, and Ken Weiss

Today, scholars from numerous and highly diverse fields are not only addressing the question of what makes us human, but also seeking input from other disciplines to inform their answers to this fundamental issue. However, for the most part, evolutionary anthropologists are not particularly prominent in this discussion, or at least not acknowledged to be. Why is this the case? One reason may be that although evolutionary anthropologists are uniquely positioned to provide valuable insight on this subject, the responses from any one of us are likely to be as different as the research specializations and intellectual experiences that we bring to the table. Indeed, one would anticipate that a paleoanthropologist would not only have different views than a primatologist, geneticist, or behavioral ecologist, but from other paleoanthropologists as well. Yet if asked by a theologian, psychologist, or political scientist, and perhaps most importantly, by any curious person outside the walls of academia, do we have a response that most evolutionary anthropologists could agree on as reflecting our contributions to the understanding of being and becoming human? Our introductory textbooks usually begin with this fundamental question, yet seldom produce a concise answer.

DOMÍNGUEZ-RODRIGO 2014

M. Domínguez-Rodrigo, *Is the “Savanna Hypothesis” a Dead Concept for Explaining the Emergence of the Earliest Hominins?* [Current Anthropology](#) **55** (2014), 59–81.

There is a growing consensus in early hominin studies that savannas did not play a significant role in the emergence of human evolutionary processes. Early hominins have been reported to be associated with densely wooded environments and sometimes forest, thereby reducing the importance of a shift from closed to open ecosystems in shaping these processes. In the second half of the twentieth century, two versions of the savanna hypothesis emerged: one depicted savannas as grasslands, the other as seasonal mosaic environments. Research has shown that the former is no longer tenable, but an increasing amount of paleoecological information provides compelling support for the latter. Here a critical review of the available paleoecological evidence is presented, and it is concluded that the savanna hypothesis not only has not been falsified but its heuristics are stronger than ever before.

#### GROVES 2012

Colin Groves, *Speciation in hominin evolution*. In: SALLY C. REYNOLDS & ANDREW GALLAGHER (Hrsg.), *African Genesis, Perspectives on Hominin Evolution*. (Cambridge 2012), 45–32. In this chapter, I survey ideas of the concept of species, as they apply to the human evolutionary record. I discuss the question of the meaning of a genus, concluding that all species since the separation of the human line from that of the chimpanzee (and possibly including the chimpanzee lineage as well) should be placed in a single genus, for which the prior available name is *Homo*. How new species arise is a yet more controversial topic, and I list the variety of modes of speciation that have been proposed, with predictions as to what the results of some of these modes might look like, making suggestions as to how they might apply in palaeoanthropology.

#### SMITH 2013

Eric Alden Smith, *Agency and Adaptation, New Directions in Evolutionary Anthropology*. *Annual Review of Anthropology* 42 (2013), 103–120.

Neo-Darwinian evolution is widely acknowledged as the key framework for understanding the form and function of living systems, including myriad aspects of animal behavior. Yet extensions to human behavior and society are perennially challenged; debates are vociferous and seemingly irresolvable, and evolutionary approaches to human behavior are marginalized within much of anthropology and other social sciences. This review explores this contested terrain, arguing that although many critiques of evolutionary analyses of behavior are faulty, some valid concerns must be addressed. Human agency, behavioral plasticity, and the partial autonomy of cultural and historical change present real challenges to the standard evolutionary framework. However, several additions to the standard framework currently employed by evolutionary anthropologists and others address these concerns and provide a more comprehensive understanding of human behavioral evolution and adaptation. These additions include phenotypic adaptation, cultural transmission, gene-culture coevolution, and niche construction.

**Keywords:** neo-Darwinism, phenotypic adaptation, cultural transmission, gene-culture coevolution, niche construction

## Bibel

FAUST 2013

Avraham Faust, *From Regional Power to Peaceful Neighbour, Philistia in the Iron I–II Transition*. [Israel Exploration Journal 63 \(2013\), 174–204](#).

This paper examines the changes in settlement patterns, internal trade relations and material culture that occurred in Philistia and the Shephelah during the Iron I–II transition. It appears that the Philistines were hegemonic during the Iron Age I. They lived in large fortified settlements, accompanied by smaller settlements in the coastal areas. The Shephelah was only sparsely settled at the time, probably as a result of Philistine policy. Since it was to their advantage to maintain high boundaries with their neighbours, the Philistines increased their use of ‘foreign’ elements in their material culture. The Philistines were significantly weakened during the transition to the Iron Age IIA, with many sites becoming significantly smaller and others abandoned. As the Philistines withdrew westward, the Shephelah was gradually filled with new Israelite/Judahite settlements. In tandem with their weakening, the Philistines changed their boundary maintenance strategy, and in a quick process of cultural change, abandoned many of the foreign traits that previously characterised them. Instead, they adopted a local material vocabulary, symbolising that they had become ‘one of the neighbours’. The city of Gath is an exception: Philistine identity was negotiated there differently than in other sites in Philistia.

## Datierung

RICHTER 2005

Daniel Richter, *Altersbestimmungen in der Archäologie, Naturwissenschaftliche Datierungsmethoden*. In: N. J. CONARD, S. KÖLBL & W. SCHÜRLE (Hrsg.), *Vom Neandertaler zum modernen Menschen*. ([Ostfildern 2005](#)), 191–198.

RICHTER 2014

Daniel Richter & Günther A. Wagner, *Chronometric Methods in Palaeoanthropology*. In: W. HENKE, T. HARDT & I. TATTERSALL (Hrsg.), *Handbook of Paleanthropology*. ([Berlin 2014](#)).

Keywords absolute dating | Ar/Ar | chronometric dating | cosmogenic nuclide | dating methods | dosimetric dating

## Grundlagen

GROVES 2013

Colin Groves, *Hominin migrations before Homo sapiens, Out of Africa – how many times?* In: IMMANUEL NESS (Hrsg.), *The Encyclopedia of Global Human Migration*. ([London 2013](#)).

This chapter discusses both the fossil and the archaeological records for early Homo dispersal, especially beyond Africa to eastern Asia. The author also offers a simplified classification of hominin genera by subsuming most into Homo.

### HERTLER 2013

Christine Hertler, Angela Bruch & Michael Märker, *The earliest stages of hominin dispersal in Africa and Eurasia*. In: IMMANUEL NESS (Hrsg.), *The Encyclopedia of Global Human Migration*. (London 2013). This chapter describes the earliest potential movements of hominins (proto-humans) within Africa, starting from almost 7 mya, and focusing on the genesis of Australopithecus and Homo and the dispersal of the latter into Eurasia soon after 2 mya. The emphasis here is on the fossil record.

### HISCOCK 2013

Peter Hiscock, *Early Old World migrations of Homo sapiens*, *Archaeology*. In: IMMANUEL NESS (Hrsg.), *The Encyclopedia of Global Human Migration*. (London 2013). This chapter complements chapter 4 by focusing on the cultural evidence for the origins and dispersal of early Homo sapiens. It points out that the dispersal of modern humans across the Old World was not so clearly marked in the archaeological record as some earlier models suggested, especially those focused only on Africa, the Near East, and Europe.

### MILISAUSKAS 2011

SARUNAS MILISAUSKAS (Hrsg.), *European Prehistory, A Survey. Interdisciplinary Contributions to Archaeology* (New York 2011).

### STONEKING 2013

Mark Stoneking & Katerina Harvati, *Early Old World migrations of Homo sapiens*, *Human biology*. In: IMMANUEL NESS (Hrsg.), *The Encyclopedia of Global Human Migration*. (London 2013). This chapter presents the genetic and fossil evidence concerning the origins and earliest dispersals of Homo sapiens across the Old World. The authors begin by reviewing the evidence for an African origin of Homo sapiens, and then consider the following questions: how many major dispersals of modern humans were there out of Africa, when did they occur, and by what routes?

## Klima

### FEAKINS 2013

Sarah J. Feakins, Naomi E. Levin, Hannah M. Liddy, Alexa Sieracki, Timothy I. Eglinton & Raymonde Bonnefille, *Northeast African vegetation change over 12 m.y.* *Geology* **41** (2013), 295–298. Intense debate surrounds the evolution of grasses using the C4 (Hatch-Slack) photosynthesis pathway and the emergence of African grasslands, often assumed to be one and the same. Here, we bring new insights with the combination of plant leaf wax carbon isotopic composition (d13Cwax) and pollen data from marine sediments of the Gulf of Aden (northeast Africa), which show that C4 biomass increases were not necessarily associated with regional grassland expansion. We find broadly opposing trends toward more enriched d13Cwax values and decreased grass pollen proportions between 12 and 1.4 Ma. This apparently contradictory evidence can be reconciled if a greater proportion of the Late Miocene northeast African landscape were covered by C3 grasses than previously thought, such that C4 grasses and shrubs replaced a C3 ecosystem including trees and productive



grasslands. In addition,  $\delta^{13}\text{C}_{\text{wax}}$  and pollen both indicate that true rainforests were unlikely to have been extensive in northeast Africa at any time in the last 12 m.y., although seasonally dry forests were a significant component of the regional landscape since the Late Miocene. Here, we extend regionally integrative marine archives of terrestrial vegetation back to 12 Ma, and we evaluate them in the context of an updated compilation of pedogenic carbonate  $\delta^{13}\text{C}$  values from East African Rift strata. We identify two distinct phases of increasing  $\text{C}_4$  biomass between 11 and 9 Ma (with a reversal by 4.3 Ma) and then a re-expansion between 4.3 and 1.4 Ma; surprisingly, neither was associated with grassland expansion.

#### MALEY 2002

Jean Maley, *A Catastrophic Destruction of African Forests about 2,500 Years Ago Still Exerts a Major Influence on Present Vegetation Formations*. *IDS Bulletin* **33** (2002), i, 13–30.

The disturbance between 20 000 and 15 000 BP coincided with the development of glacial conditions in middle and high latitudes, and cooler conditions by several degrees also affected the whole region of the Gulf of Guinea. The most recent disturbance, by contrast, occurred during the Holocene interglacial which on a global scale, is characterised by reduced glacial extension and relatively warmer temperatures. The period between 2500 and 2000 BP is associated with slightly warmer climatic conditions on the regional and global scale. An important conclusion is that the retreat and fragmentation of the African forests can be produced under very different climates, either relatively cool or relatively warm, and thus with very different climatic situations.

### Kultur

#### BELL 2014

Adrian Viliami Bell, *Cultural evolution and the way we count*. *PNAS* **111** (2014), 1227–1228.

However, if the mixed system had an advantage for managing trade or tribute across groups, and presumably Mangareva was part of a large trade network, why didn't it spread more broadly across neighboring islands? Was it relegated solely to internal affairs? Similarly, why was it invented only on Mangareva, and not the other islands of the Pacific with similar ecologies? These puzzles beg a more sophisticated treatment of how the Mangarevan mixed system became established through the process of learning and diffusion.

#### BENDER 2014

Andrea Bender & Sieghard Beller, *Mangarevan invention of binary steps for easier calculation*. *PNAS* **111** (2014), 1322–1327.

When Leibniz demonstrated the advantages of the binary system for computations as early as 1703, he laid the foundation for computing machines. However, is a binary system also suitable for human cognition? One of two number systems traditionally used on Mangareva, a small island in French Polynesia, had three binary steps superposed onto a decimal structure. Here, we show how this system functions, how it facilitated arithmetic, and why it is unique. The Mangarevan invention of binary steps, centuries before their formal description by Leibniz, attests to the advancements possible in numeracy even in the absence of notation and thereby highlights the role of culture for the evolution of and diversity in numerical cognition.

mathematical cognition | binary numeration systems | cognitive tools | cultural representations | mental arithmetic



## Mittelpaläolithikum

RICHTER 2011

Jürgen Richter, *When Did the Middle Paleolithic Begin?* In: *Neanderthal Lifeways, Subsistence and Technology, One Hundred Fifty Years of Neanderthal Study*. Vertebrate Paleobiology and Paleoanthropology 19 (New York 2011), 7–14.

The Middle Paleolithic has widely been understood as the epoch of the Neanderthals, including early (PreNeanderthals) and classic Neanderthals. The onset of the Middle Paleolithic has conventionally been defined as the time when the Levallois concept of flake production became a dominant and regular feature in stone artifact assemblages. The same “Levallois generalization” seems to have started after the Holsteinian interglacial and before the Drenthe ice advance. New radiometric dating for the Holsteinian (now around 300 ka) and Drenthe (now around 150 ka) indicates the ages for some early Middle Paleolithic assemblages to be much younger than previously thought. Regional chronologies need re-evaluation based on the new, shorter chronological model.

Keywords: Middle Paleolithic | Chronology | Levallois | Discoid | quina | Drenthe ice advance | Holsteinian interglacial

## Physik

HAWKING 2014

S. W. Hawking, *Information Preservation and Weather Forecasting for Black Holes*. arXiv (2014), 1401.5761. <http://arxiv.org/pdf/1401.5761>.

It has been suggested that the resolution of the information paradox for evaporating black holes is that the holes are surrounded by firewalls, bolts of outgoing radiation that would destroy any infalling observer. Such firewalls would break the CPT invariance of quantum gravity and seem to be ruled out on other grounds. A different resolution of the paradox is proposed, namely that gravitational collapse produces apparent horizons but no event horizons behind which information is lost. This proposal is supported by ADS-CFT and is the only resolution of the paradox compatible with CFT. The collapse to form a black hole will in general be chaotic and the dual CFT on the boundary of ADS will be turbulent. Thus, like weather forecasting on Earth, information will effectively be lost, although there would be no loss of unitarity.

SCHLICHTING 2014

H. Joachim Schlichting, *Glatt daneben*. *Spektrum der Wissenschaft* 2014, ii, 60–61.

Erst eine dünne Wasserschicht macht Eis wirklich rutschig. Doch wie sie genau entsteht, wissen nur wenige.

## Story or Book

CLONEY 2014

Ross Cloney, *Motivation, Opportunity knocks*. *nature* 505 (2014), 580.

We cannot change the past. All that has happened has happened. But not all that has occurred has happened.