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References

Aiello 2001

Leslie C. Aiello & Mark Collard, *Our newest oldest ancestor?* nature **410** (2001), 526–527.

These are exciting times in the study of human origins. But excitement needs to be tempered with caution in assessing the claim of a six-million-year-old direct ancestor of modern humans.

The announcement of Orrorin has caused a considerable stir. The authors also argue that Orrorin is on the direct line leading to modern humans, whereas most of the members of the genus Australopithecus are not.

Most palaeoanthropologists do not recognize a major dichotomy in hominin locomotor ability before the evolution of Homo ergaster, around 1.9 million years ago, and recent analyses of the A. anamensis skeleton suggest that it was much like that of other members of the genus Australopithecus. Senut's claim for more modern walking for Orrorin, linking it with Praeanthropus and Homo, is based on detailed aspects of the anatomy of the upper part of the thigh-bone that are open to alternative explanations.

Breunig 2016

Peter Breunig & Nicole Rupp, *An Outline of Recent Studies on the Nigerian Nok Culture.* Journal of African Archaeology **14** (2016), 237–255.

Until recently the Nigerian Nok Culture had primarily been known for its terracotta sculptures and the existence of iron metallurgy, providing some of the earliest evidence for artistic sculpting and iron working in sub-Saharan Africa. Research was resumed in 2005 to understand the Nok Culture phenomenon, employing a holistic approach in which the sculptures and iron metallurgy remain central, but which likewise covers other archaeological aspects including chronology, settlement patterns, economy, and the environment as key research themes. In the beginning of this endeavour the development of social complexity during the duration of the Nok Culture constituted a focal point. However, after nearly ten years of research and abundance of new data the initial hypothesis can no longer be maintained. Rather than attributes of social complexity like signs of inequality, hierarchy, nucleation of settlement systems, communal and public monuments, or alternative African versions of complexity discussed in recent years, has become apparent that the Nok Culture, no matter which concept is followed, developed complexity only in terms ritual. Relevant information and arguments for the transition of the theoretical background are provided here.

Connah 1987

Graham Connah, *African civilizations*, *An archaeological perspective.* (Cambridge ^{2}2001).

Connah 2004

Graham Connah, *Forgotten Africa*, *An introduction to its archaeology.* (Abingdon 2004).

Copley 2004

Mark S. Copley, Fabricio A. Hansel, Karim Sadr & Richard P. Evershed, *Organic residue evidence for the processing of marine animal products in pottery vessels from the pre-colonial archaeological site of Kasteelberg D east, South Africa*. South African Journal of Science **100** (2004), 279–283.

Pre-colonial herding communities from coastal sites in South Africa are known to have exploited sheep and seal products. Animal bone assemblages from various archaeological sites on Kasteelberg on the west coast suggest that these species dominated the economy of the region. This appears to be mirrored in different pottery vessel types, and it has been suggested that one particular vessel type, spouted wares, is associated with dairying. Organic residue analysis of 20 potsherds from spouted vessels has revealed that, rather than being associated with the processing of dairy products, these vessels were actually predominantly used to process marinederived animal products.

Eggert 2005

Manfred K. H. Eggert, *The Bantu Problem and African Archaeology*. In: Ann Brower Stahl (Hrsg.), *African Archaeology, A Critical Introduction*. Blackwell Studies in Global Archaeology 3 (Oxford 2005), 301–326.

Ehret 2008

Christopher Ehret, *The early livestock-raisers of southern Africa*. Southern African Humanities **20** (2008), 7–35.

The Khoekhoe have long been recognized as historically distinctive livestock-raising people, whose ancestors were responsible for the establishment of cattle-raising across the western half of southern Africa. A further, no longer extant Limpopo Khoekhoe people have been identified as having had a major impact on the establishment of cattle and sheep-raising in the eastern side of southern Africa as well. What has been less clearly depicted is where the linguistically very closely related peoples of the Kwadi-Khoe branch of southern African Khoesan stand in these developments, and what the impact of these changes might have been on other, non-Khoe peoples. A third element, of particular relevance in the potentially correlative archaeology, is the place of ceramic technology in this story. Together, these themes are key in proposing wider linguistic, historical and archaeologically informative perspectives on the early history of livestock and livestockraising peoples in southern African history.

Keywords: Loanwords | Khoe | Zhu | Tuu | Kwadi | Nguni | Sotho | livestock | ceramics.

Fauvelle 2013

François-Xavier Fauvelle, *Das Goldene Rhinozeros, Afrika im Mittelalter*. (München 2017). Originaltitel: Le Rhinoceros d'or – Histoires du Moyen Âge africain.

Gronenborn 2001

Detlef Gronenborn, *Zum (möglichen) Nachweis von Sklaven/Unfreien in prähistorischen Gesellschaften Mitteleuropas*. Ethnographisch-Archäologische Zeitschrift **42** (2001), 1–42.

On (possible) evidence of slaves or unfree in prehistoric societies of Central Europe. Up to this date slavery as a social phenomenon has found little attention in Central European Prehistoric Archaeology. One of the main reasons is the lack of visibility of slavery in the archaeological record. Moreover, prehistoric societies are often construed as having been non-hierarchical, hence an existence of slavery is not taken into consideration. The question of slavery and more rigidly organised prehistoric groups is raised again and solutions are sought by using ethnographically documented examples.

Sklaverei als gesellschaftliches Phänomen ist bislang in der prähistorischen Archäologie Mitteleuropas nur selten behandelt worden. Einer der Hauptgründe dürfte die schwierige Nachweisbarkeit von Sklaverei sein. Jedoch hat wohl auch die vielfach vertretene Ansicht, Sklaverei könne es in den konstruierten wenig hierarchisch gegliederten Gesellschaften nicht gegeben haben, eine Auseinandersetzung mit dem Thema verhindert. In dieser Abhandlung wird die Frage erneut aufgegriffen und mit Hilfe ethnographisch dokumentierter Fallbeispiele Ansätze zu einer Berücksichtigung von Sklaverei und möglicherweise rigide geordneter prähistorischer Gesellschaften vorgeschlagen.

Gronenborn 2014

Detlef Gronenborn, *Häuptlinge und Sklaven? Anfänge gesellschaftlicher Differenzierung.* Archäologie in Deutschland **2014**, Sonderheft 5, 39–47.

Die Ethnografie zeigt jedoch, dass oftmals Individuen ohne festen Rechtsstatus – wie Kriegsgefangene oder Sklaven – nach ihrem Tod achtlos in Abfallgruben oder an den Rand des Siedlungsbereichs geworfen werden. Diese Interpretation ist jüngst von Philippe LeFranc und Christian Jeunesse erweitert worden: Sie sehen in Bestattungen von mehreren Individuen in Gruben – von denen eines zentral deponiert wurde – die Grablege einer höherstehenden Person mit ihren Sklaven. Solche Interpretationen, an vielen Orten der Welt nachvollziehbar, stehen jedoch den traditionellen Vorstellungen vieler Fachwissenschaftler über die Natur jungsteinzeitlicher Gemeinschaften entgegen und dürften daher zurückhaltend aufgenommen werden. Folgen wir jedoch dieser Interpretationslinie, so deutet sich eine rigide geordnete Gesellschaft an. Mehr wissen wir allerdings nicht über die politischen und sozialen Organisationsformen der Michelsberger Kulturen. Bislang sind lediglich aus der frühen Periode im Aisne-Tal in Frankreich aufwendige Gräber bekannt geworden.

Grün 2003

Rainer Grün, Peter Beaumont, Phillip V. Tobias & Stephen Eggins, *On the age of Border Cave 5 human mandible.* Journal of Human Evolution **45** (2003), 155–167.

An enamel fragment from the Border Cave 5 specimen was analysed with non-destructive ESR combined with laser ablation ICP-MS for uranium profiling. We obtained an age of 74 ± 5 ka which fits exactly into the chronological framework that has been previously established for Border Cave by a variety of dating techniques. The result lays at rest the view that BC5 could be of Iron Age, as was implied by (Journal of Human Evolution, 31 (1996) 499) based on nitrogen contents and infra-red splitting factors.

Hahn 1991

Joachim Hahn, *Erkennen und Bestimmen von Stein- und Knochenartefakten, Einführung in die Artefaktmorphologie.* Archaeologia Venatoria 10 (Tübingen 1991).

Henshilwood 2002
Christopher S. Henshilwood et al., *Emergence of Modern Human Behavior: Middle Stone Age Engravings from South Africa*. science **295** (2002), 1278–1280.
s295-1278-Supplement.htm, s295-1278-Supplement.jpg
Christopher S. Henshilwood, Francesco d'Errico, Royden Yates, Zenobia Jacobs, Chantal Tribolo, Geoff A. T. Duller, Norbert Mercier, Judith C. Sealy, Helene Valladas, Ian Watts & Ann G. Wintle
In the Eurasian Upper Paleolithic after about 35,000 years ago, abstract or depictional images provide evidence for cognitive abilities considered integral to modern human behavior. Here we report on two abstract representations engraved on pieces of red ochre recovered from the Middle Stone Age layers at Blombos Cave in South Africa. A mean date of 77,000 years was obtained for the layers containing the engraved ochres by thermoluminescence dating of burnt lithics, and the stratigraphic integrity was confirmed by an optically stimulated luminescence age of 70,000 years on an overlying dune. These engravings support the emergence of modern human behavior in Africa at least 35,000 years before the start of the Upper Paleolithic.

Hertel 2001
Peter Hertel, *Projekt Diplomarbeit, Schreibwerkstatt*. (Osnabrück 2001). <http://www.informatik.hs-furtwangen.de/~hanne/LATEX-DA-sws.pdf> (2017-04-16).
Wir halten fest: Jedes Dokument, mit dem man sich wegen der Diplomarbeit beschäftigt, ist sofort in der Literaturdatenbank zu vermerken. Auch dann, wenn Sie noch gar nicht wissen können, ob das Schriftstück zitiert werden soll, oder an welcher Stelle.

Hodgson 2014
Derek Hodgson, *Decoding the Blombos Engravings, Shell Beads and Diepkloof Ostrich Eggshell Paterns*. Cambridge Archaeological Journal **24** (2014), 57–69.
The debate regarding the status of the Blombos ochre engravings and shell beads for gauging the timeline of when cognitive abilities and symbolic intent appeared has been controversial. This is mainly due to the fact that what is referred to as symbolic is oten too loosely deined and is therefore atributed to artefacts in an indiscriminate way. Recent evidence from various concurrent sites in southern Africa, including Blombos, provide the opportunity for a more nuanced analysis of the probable level of symbolic intent and how this relates to neuro-cognitive precursors. In what follows, it will be shown that, although some of the southern African artefacts do indeed demonstrate particular kinds of 'symbolic' intent, others need to be approached with caution. Data from the visual brain is presented that provides crucial evidence as to the appropriate level of intent suggested by the engravings and shell beads from the southern Africa context.

Hovers 2009
Erella Hovers, *Learning from Mistakes, Flaking Accidents and Knapping Skills in the Assemblage of A.L. 894 (Hadar, Ethiopia)*. In: Kathy Schick & Nicholas Toth (Hrsg.), *The Cutting Edge, New Approaches to the Archaeology of Human Origins*. Stone Age Institute Publication Series 3 (Gosport 2009), 137–150.

Researchers have focused on broken, hinge and step flakes as proxies for knapping skills. Some basic measures such as frequencies of accidents (expressed by a number of assemblage composition variables and/or flake traits) have been applied as a coarse measure for the level of knapping skills.

In the assemblage of A.L. 894 artifacts conventionally defined as "accidents" reveal knappers' ability to extend the knapping process after accidents had occurred, indicating high skill levels and at least short-term technological foresight. These interpretations are consistent with the notion that very early tool-makers were cognizant of flaking mechanics.

Ichumbaki 2021

Elgidius B. Ichumbaki & Edward Pollard, *The Swahili Civilization in Eastern Africa*. Oxford Research Encyclopedia of Anthropology **2021**, Mar. 25. DOI:10.1093/acrefore/9780190854584.013.267.

The urbanization and globalization being experienced in Africa in this early 21st century have deep foundations in the continentÆs history. In Sub-Saharan Africa, for example, theories on the origin of urbanization have developed through the 20th century from an external origin emphasis. There was little recognition of the greater part played by the local people. The producers of these cultures engaged in activities shaped by the environment and sociocultural, political, and economic connections. For instance, in Eastern Africa, Iron Age people became united by language and religion, and exploited the coast and sea during the medieval period (from the end of the early Iron Age c. 500 CE to the arrival of the Portuguese at the end of the 15th and to the early 16th century). Iron Age people traded with inland Africa, East and Southern Asia, and Europe, producing what has become popularly known as the ôSwahili civilization.ö This civilization along the coast of Eastern Africa is marked by material culture of iron working, cloth production, pottery, beads, and glass as well as monumental constructions that range from stone-built mosques, tombs, and palaces. A maritime trade assisted by seasonally reversing monsoon winds exported gold, slaves, animal skins, ivory, and mangrove poles from Eastern Africa and imported beads, porcelain, and silks. The evidence that marks the Swahili civilization is spread over an area that extends along the coast of Eastern Africa about 3,000 km from Mogadishu (Somalia) in the north to Inhambane (Mozambique) in the south. The Swahili civilization locale also includes the islands of Unguja (Zanzibar), Pemba, Mafia, Comoros, and northern Madagascar. Some remnants marking the Swahili civilization include UNESCO World Heritage Sites of Lamu Old Town, Zanzibar Stone Town, Ruins of Kilwa Kisiwani and Songo Mnara, and Ilha de Mozambique. The civilization continues in this early 21st century with its oral traditions and maritime technology that are testimony of coastal Swahili culture continuing through Eastern AfricaÆs social and economic challenges.

Keywords: Swahili | Stone Age communities | monumentality | urbanization | maritime trade | East Africa | maritime route

Jacobs 2008

Zenobia Jacobs et al., *Ages for the Middle Stone Age of Southern Africa, Implications for Human Behavior and Dispersal*. science **322** (2008), 733–735.

s322-0733-Supplement.pdf

Zenobia Jacobs, Richard G. Roberts, Rex F. Galbraith, Hilary J. Deacon, Rainer Grün, Alex Mackay, Peter Mitchell, Ralf Vogelsang & Lyn Wadley

The expansion of modern human populations in Africa 80,000 to 60,000 years ago and their initial exodus out of Africa have been tentatively linked to two phases of technological and behavioral innovation within the Middle Stone Age of southern Africa-the Still Bay and Howieson's Poort industries-that are associated with early evidence for symbols and personal ornaments. Establishing the correct sequence of events, however, has been hampered by inadequate chronologies. We report ages for nine sites from varied climatic and ecological zones across southern Africa that show that both industries were short-lived (5000 years or less), separated by about 7000 years, and coeval with genetic estimates of population expansion and exit times. Comparison with climatic records shows that these bursts of innovative behavior cannot be explained by environmental factors alone.

Jesse 2004

Friederike Jesse, *The Neolithic*. In: Derek A. Welsby & Julie R. Anderson (Hrsg.), *Sudan Ancient treasures, An exhibition of recent discoveries from the Sudan National Museum*. (London 2004), 35–41.

Junius 2016

Henrik Junius, *Nok Early Iron Production in Central Nigeria, New Finds and Features*. Journal of African Archaeology **14** (2016), 291–311.

Between 2005 and 2013, new archaeometallurgical finds and features in central Nigeria resulted from several excavation campaigns conducted by the Nok research project, Goethe University, Frankfurt. This article presents the first excavation results and compares the newly generated data to the publications on the Nok iron smelting site of Taruga from 40 years ago. All newly excavated sites find close resemblance in each other in regards to dates in the middle of the first millennium BCE, furnace design, find distribution and find properties. In some cases, the finds from the Taruga valley fit in the new and homogeneous picture of Nok iron metallurgy. However, Taruga differs from the new sites in its variety of furnace design and number of furnaces.

Whereas furnace bases with a width of around one meter based on slag pits partially filled with slag seem to be the rule for all newly excavated Nok furnaces, only some furnaces at Taruga exhibit these characteristics. Furnace variability at Taruga could be explained by a longer and/or subsequent site usage through time. Modern era finds like a clay smoking pipe, the higher number of furnaces per site as well as a higher dispersion of absolute dates and the variability of furnace design could support this assumption. This paper concentrates on the archaeological context of a specific type of early iron technology in central Nigeria; ongoing archaeometric analysis of all related finds will be presented elsewhere.

Keywords: Nok | Taruga | iron smelting | iron technology | Nigeria | West Africa

Kaplan 2000

Hillard Kaplan, Kim Hill, Jane Lancaster & A. Magdalena Hurtado, *A Theory of Human Life History Evolution: Diet, Intelligence, and Longevity*. Evolutionary Anthropology **9** (2000), 156–185.

Human life histories, as compared to those of other primates and mammals, have at least four distinctive characteristics: an exceptionally long lifespan, an extended period of juvenile dependence, support of reproduction by older post-reproductive individuals, and male support of reproduction through the provisioning of females and their offspring. Another distinctive feature of our species is a large brain, with its associated psychological attributes: increased capacities for

learning, cognition, and insight. In this paper, we propose a theory that unites and organizes these observations and generates many theoretical and empirical predictions. We present some tests of those predictions and outline new predictions that can be tested in future research by comparative biologists, archeologists, paleontologists, biological anthropologists, demographers, geneticists, and cultural anthropologists.

Kusimba 2020

Chapurukha M. Kusimba, *Early States and Complex Societies in Eastern and Southern Africa*. Oxford Research Encyclopedia of Anthropology **2020**, Nov. 19. DOI:10.1093/acrefore/9780190854584.013.70.

How and in what ways did socially complex societies emerge on the East African coast and southern Africa? Scholarship has shown that elite investment in interregional trade and in extractive technologies, monopolization of wealth-creating resources, and warfare may have played a key role in the emergence of early states. To what extent was elite and non-elite engagement in local, regional, and transcontinental economic networks crucial to development of social complexity in eastern and southern Africa? Extensive research on the eastern coast of Africa (Kenya and Tanzania) and southern Africa (Zimbabwe, Botswana, and South Africa) has yielded adequate data to enable a discussion on the trajectories of the evolution of social complexity and the state. So far, three crucial factors: (a) trade, (b) investment in extractive technologies, and (c) elite monopolization of wealth-creating resources coalesced to propel the region toward greater interaction and complexity. Major transformations in the form and increase of household size, clear differences in wealth and status, and settlement hierarchies occurred toward the end of the first millennium AD. Regional scholarship posits that elite control of internal and external trade infrastructure, restricted access to arable land and accumulation of surplus, manipulation of religious ideology, and exploitation of ecological crises were among the major factors that contributed to the rise of the state. Could these factors have also favored investment and use of organized violence as a means to gain access to and monopolize access to information and wealth-creating resources? Scholarship in the 21st century favors the notion that opportunistic use of ideological and ritual power enabled a small elite initially composed of elders, ritual specialists, and technical specialists to control the regional political economy and information flows. The timing of these transformations was continent-wide and date to the last three centuries of the first millennium AD. By all measures, the evidence points to wealth accumulation through trade, tribute, and investment in agrarianism, pastoralism, and mining.

Keywords: Swahili | trade | elites | Great Zimbabwe | mining | southern Africa | long-distance trade | warfare | s
ocial complexity | Indian Ocean

Lejju 2005

B. J. Lejju, D. Taylor & P. Robertshaw, *Late-Holocene environmental variability at Munsa archaeological site, Uganda: a multicore, multiproxy approach*. The Holocene **15** (2005), 1044–1061.

Palaeoenvironmental data, in the form of 113 counts of pollen, fungal spores and charcoal abundances, 121 counts of phytoliths and 15 AMS 14C dates (11 macrofossil and 4 bulk sediment samples), have provided a means of reconstructing the late-Holocene environmental history of Munsa archaeological site, Uganda. The data were extracted from sediment cores from what is today a papyrus swamp, located within an area described by an outermost ring of earthworks at Munsa. Sediment core data indicate the general presence of forested conditions to C. AD

1100, although there is evidence for the local presence of food plants prior to this date. Deforestation from c. AD 1100 is marked in both the pollen and phytolith records, while fungal spores indicate the presence of increased numbers of herbivores post-deforestation. Indicators of deforestation and increased herbivore numbers broadly accord with the archaeological evidence for substantial occupation of the site at Munsa and the establishment of a mixed economy based on crops, cattle and iron working. Evidence for forest recovery and reduced herbivore numbers locally from C. AD 1780 could reflect abandonment of permanent settlement at the site, possibly during or following a period of drought and/or political upheaval in the region. Fungal spores and phytoliths provide evidence of agricultural activities at Munsa that have not left an imprint on pollen records, thus supporting the case for the use of multiproxies in palaeoenvironmental research, while intercore differences between the three sediment cores analysed, although relatively minor, confirm the benefits of a multicore approach. Tentative evidence for the very early presence of Musa (cultivated edible banana) is provided and warrants further study.

Key words: Africa, Uganda, archaeology, environmental variability, banana cultivation, charcoal, climate change, fire, fungal spores, pollen, phytoliths, late Holocene.

Di Lernia 1999

Savino Di Lernia, *Discussing pastoralism, The case of the Acacus and surroundings (Libyan Sahara)*. Sahara **11** (1999), 7–20.

Pastoral economy is one of the most widely-spread subsistence strategies in Africa, showing a remarkable stability and a great capacity of adaptation to frequently unfavourable climatic conditions. These qualities are probably the result of very old forms of development and maturation, rooted in the Early Holocene period. The Sahara, and especially its central massifs, supplies interesting clues for analysing the pattern of the evolution and success of this type of economy. This paper deals with some methodological aspects concerning the pastoral phenomenon in its complexity. A first, preliminary reconstruction of the historical dynamics is attempted, by an archaeological analysis of the settlement system and the economic strategies adopted. The region under study is the south western Fezzan, in the Libyan Sahara, and in particular the Tadrart Acacus massif. This is the research area of the "Missione Congiunta Italo-Libica" of the University of Rome "La Sapienza".

Lovejoy 2009

C. Owen Lovejoy, Gen Suwa, Scott W. Simpson, Jay H. Matternes & Tim D. White, *The Great Divides: Ardipithecus ramidus Reveals the Postcrania of Our Last Common Ancestors with African Apes*. science **326** (2009), 73, 100–106.

s326-0073-Supplement.pdf

Genomic comparisons have established the chimpanzee and bonobo as our closest living relatives. However, the intricacies of gene regulation and expression caution against the use of these extant apes in deducing the anatomical structure of the last common ancestor that we shared with them. Evidence for this structure must therefore be sought from the fossil record. Until now, that record has provided few relevant data because available fossils were too recent or too incomplete. Evidence from Ardipithecus ramidus now suggests that the last common ancestor lacked the hand, foot, pelvic, vertebral, and limb structures and proportions specialized for suspension, vertical climbing, and knuckle-walking among extant African apes. If this hypothesis is correct, each extant African ape genus

must have independently acquired these specializations from more generalized ancestors who still practiced careful arboreal climbing and bridging. African apes and hominids acquired advanced orthogrady in parallel. Hominoid spinal invagination is an embryogenetic mechanism that reoriented the shoulder girdle more laterally. It was unaccompanied by substantial lumbar spine abbreviation, an adaptation restricted to vertical climbing and/or suspension. The specialized locomotor anatomies and behaviors of chimpanzees and gorillas therefore constitute poor models for the origin and evolution of human bipedality.

McGranaghan 2017

Mark McGranaghan, *Ethnographic Analogy in Archaeology, Methodological Insights from Southern Africa*. Oxford Research Encyclopedia of Anthropology **2017**, Oct. 26. DOI:10.1093/acrefore/9780190277734.013.213.

Analogical arguments are central to and pervasive within archaeological discourse. Within these arguments, ethnographic analogies are often seen as being particularly problematic exercises in essentialism, which unthinkingly cast reified ethnographic schema back in time and thus perpetuate ideas about primitive indigenes, awaiting colonial contact to emerge from ahistorical primordial obscurity. The shadow of 19th-century social evolutionism, in which forager communities (not participating in agriculture and leading nomadic lifestyles) were represented as particularly primitive, has cast a pall of suspicion over ethnographic analogical models—especially as forager communities continue to feature prominently in such models to this day.

Archaeologists use ethnographic analogies in a variety of ways; these analogies are heuristic constructs tailored to research questions and to the stubbornness of particular suites of archaeological data. Such uses include inducing imaginative and revelatory modes of thinking about past societies, outside of the archaeologist's usual experiences, as well as a suite of formal and relational analogies that seek to combine ethnographic data with data drawn from the physical sciences to help constrain archaeological interpretation.

Direct historical approaches utilize a collection of ethnographic and historical sources to construct analogies based on a relation of similarity between the communities of people involved; these frameworks, perhaps, carry the greatest danger of unwittingly casting modern populations as "contemporary primitives." By emphasizing that source-side ethnographic datasets are heuristic tools rather than reflections of some sociocultural reality, such fears may (at least in part) be ameliorated. Saliently, archaeological data must operate as epistemologically equivalent to ethnographic data in order to resist the tendency to cast back a rich, textured ethnographic case study wholesale into the murky waters of prehistory. Only when this status is afforded archaeological data can is it possible to reveal the ways in which past conditions diverged from ethnographic ones.

Keywords: analogy | ethnography | archaeology | essentialism | hunter–gatherers | rock art

Mattingly 2022

David J. Mattingly, *The Garamantes in North Africa in the Roman Period*. Oxford Research Encyclopedia of Anthropology **2022**, Feb. 24. DOI:10.1093/acrefore/9780190277734.013.1197.

Roman North Africa has traditionally been studied from a Mediterranean and colonialist perspective, in part reflecting the development of the field during the modern colonial era when archaeology was too readily recruited to the aid of modern imperial projects. The traditional approaches have emphasized the exogenous

contribution to the emergence of North Africa as one of the richest and most important regions of the Roman EmpireÆs core territory. The corollary of this has been a lack of investigation of the cultural, political, and economic institutions of the autochthonous peoples of the region prior to the Roman conquest, with the partial exception of Phoenician coastal settlements. Such approaches are very outdated in the early 21st century and in need of revision, taking account of important new knowledge of North African peoples. The Garamantes, who were a people of the Libyan Sahara external to the Roman Empire, provide an excellent case study for an alternative approach that considers the story of Africa in the Roman Empire in its broader Maghrebian and Saharan context.

Keywords: pastoralism | sedentarization | agriculture | urbanization | state formation | trade | colonial discourse | Maghreb | Sahara | Roman Empire

Mbida 2005

C. Mbida, H. Doutrelepont, L. Viydaghs, Ro Swennen, Ru Swennen, H. Beeckman, E. De Langhe & P. de Maret, *The initial history of bananas in Africa, A reply to Jan Vansina, Azania, 2003.* Azania **40** (2005), 128–135.

In conclusion, we stand by our previous conclusion that the phytoliths from the Nkang site, dating from c. 2500 bp, belong to the genus Mzwa and that they point to banana cultivation in Africa at that time. We accept that the Nkang phytolith finds need to be substantiated by more specimens, preferably from other sites. It would, therefore, be desirable to differentiate AAB plantain from the AAA East African bananas, and efforts to that end are currently being conducted in order to develop an identification key of the phytolith deriving from the genus Mzwa, triploids cultivars included. The key involves qualitative and quantitative criteria (Ball et a/. 2005a&b, and submitted). Hence, we hope that the present debate encourages more archaeologists to track banana phytoliths in humid tropical Africa in order to apply the Mzwa phytolith identification key for further documenting the antiquity of banana in Africa.

Miller 2014

Jennifer Midori Miller & Pamela Rae Willoughby, *Radiometrically dated ostrich eggshell beads from the Middle and Later Stone Age of Magubike Rockshelter, southern Tanzania.* Journal of Human Evolution **74** (2014), 118–122.

The radiocarbon dated beads from Magubike show that the OES beadmaking tradition is not exclusive to the LSA, but appears to have begun at least 50,000 years ago in the MSA. Although OES beads are not the earliest known decorative artifacts, they represent an important augmentation to social interactions. Social innovations, in conjunction with technological developments, reflect a cognitive elaboration that eventually permitted the expansion of modern human populations out of Africa (McBrearty and Brooks, 2000; Henshilwood and Marean, 2003).

Mitchell 2013

Peter Mitchell & Paul Lane (Hrsg.), *The Oxford Handbook of African Archaeology.* (Oxford 2013).

Neumann 2009

Katharina Neumann & Elisabeth Hildebrand, *Early Bananas in Africa: The state of the art.* Ethnobotany Research and Applications **7** (2009), 353–353.

Summarizing the data review, the identification of the finds from Nkang as belonging to Musa must be regarded as preliminary. The Munsa M2C3C phytoliths, as documented in the two publications of Lejju et al. (2005, 2006), do not seem to be from Musa, and even their status as Musaceae is doubtful. Both sites urgently need further botanical re-assessment.

Neumann 2018

Katharina Neumann, *Development of Plant Food Production in the West African Savannas, Archaeobotanical Perspectives*. Oxford Research Encyclopedia of Anthropology **2018**, Jan. 24. DOI:10.1093/acrefore/9780190277734.013.1066.

The West African savannas are a major area of independent plant domestication, with pearl millet, African rice, fonio, several legumes, and vegetable crops originating there. For understanding the origins of West African plant-food-producing traditions, it is useful to have a look at their precursors in the Sahara during the Äfrican humid period"between 10,500 and 4,500 years ago. The Early and Middle Holocene Saharan foragers and pastoralists intensively used wild grasses for food but did not intentionally cultivate. Due to increasing aridity in the late 3rd millennium BCE, the pastoralists migrated southward into the savanna zone. In this context pearl millet was domesticated and spread rapidly in West Africa during the 2nd millennium BCE. It was first cultivated by agro-pastoral communities, predominantly on a small scale. The 1st millennium BCE was a transitional phase: most of the early agricultural societies disappeared, but it was also a time of numerous economic and social innovations. Due to increasing aridity, the floodplains around Lake Chad and the valleys of the rivers Senegal and Niger became accessible to farming populations after 1000 BCE. In the 1st millennium CE, agriculture intensified, with mixed cultivation of cereals and legumes and the integration of new African domesticates, such as sorghum, fonio, roselle, and okra. Pearl millet remained the major crop in most areas, while sorghum dominated in northern Cameroon. Imported wheat, date palm, and cotton appeared in the first half of the 2nd millennium CE. The combined exploitation of cultivated cereals, legumes, and wild fruit trees (e.g., shea butter tree) in agroforesty systems eventually resulted in a cultural landscape as it is still visible in West Africa today.

Keywords: cultivation | domestication | Neolithic | Iron Age | West Africa | Sahara | pearl millet | sorghum | Afr
ican rice | cultural landscape

O'Higgins 2007

Paul O'Higgins and Sarah Elton, *Walking on Trees*. science **316** (2007), 1292.

Observations of modern orangutans suggest
that human bipedalism may have evolved in
the trees rather than on the ground.

de la Peña 2020

Paloma de la Peña, *Howiesons Poort*. Oxford Research Encyclopedia of Anthropology **2020**, Jul. 30. DOI:10.1093/acrefore/9780190854584.013.34.

The Howiesons Poort is a technological tradition within the Middle Stone Age of southern Africa. This technological tradition shows different characteristics, technical and symbolic (the engraving of ostrich eggshell containers, the appearance of engraved ochre, formal bone tool technology, compound adhesives for hafting

and a great variability in hunting techniques), which only developed in an extensive manner much later in other parts of the world. Therefore, the African Middle Stone Age through the material of the Howiesons Poort holds some of the oldest symbolic and complex technologies documented in prehistory. For some researchers, the Howiesons Poort still represents an unusual and ephemeral technological development within the Middle Stone Age, probably related to environmental stress, and as such there are numerous hypotheses for it as an environmental adaptation, whereas for others, on the contrary, it implies that complex cognition, deduced from the elaborated technology and symbolic expressions, was fully developed in the Middle Stone Age.

Keywords: Middle Stone Age | technology | subsistence | symbolic behavior | southern Africa

Phillipson 1985

David W. Phillipson, *African Archaeology*. (Cambridge [2]1993).

Prendergast 2020

Mary E. Prendergast, *The History of Eastern African Foragers*. Oxford Research Encyclopedia of Anthropology **2020**, Jul. 30. DOI:10.1093/acrefore/9780190277734.013.405.

Humans have foraged across diverse eastern African landscapes for millions of years. In the 21st century, few eastern Africans rely exclusively on foraging, but there are groups for whom this strategy remains central to daily life. Drawing analogies between present and past lifeways is one approach to understanding ancient foragers, but multiple lines of evidence are needed to appreciate past variation. Ethnohistories, historical linguistics, and genetics are also potential sources of information on past foragers. However, most data come from the archaeological record, key to investigating the diversity of ancient foragers in terms of technology, subsistence, mobility, social organization, and cultural expression.

The spread of herding and farming in eastern Africa over the past five millennia had a definitive impact upon foraging lifeways. Ethnographic, archaeological, and ethnohistoric evidence enables development and testing of hypotheses for past forager-food producer interactions. Some evidence suggests that past social groups (or individuals in them) may have shifted among foraging and food-producing strategies on a situational basis. Other data indicate that foragers may have joined herding and farming communities, and vice versa.

Eastern African foragers have played an underappreciated role in large-scale social, economic, and political systems. Beginning in the late Pleistocene (some 130,000 years ago), prehistoric obsidian exchange networks extended over hundreds of kilometers. Early in the Common Era (nearly 2,000 years ago), foragers were involved in Indian Ocean economic spheres that extended to western and southern Asia. The precolonial and colonial ivory and slave trades in the 16th through 19th centuries exploited and impacted foraging communities. Settler colonialism in the 20th century had devastating impacts on foragers and their access to ancestral lands. More recent threats to forager livelihoods include economic "developmentänd environmental destruction. The future of the foraging lifeway is in peril, and the 21st-century state plays a key role in determining if it will continue.

Keywords: foragers | hunter-gatherers | fishing | food production | trade | East Africa | prehistory | archaeology | ethnohistory | Holocene

Reichholf 1990

Josef H. Reichholf, *Das Rätsel der Menschwerdung, Die Entstehung des Menschen im Wechselspiel der Natur*. (München [6]2004).

Reid 2023

Sean H. Reid, *The Archaeology of Slavery in Atlantic West Africa, 1450–1900*. Oxford Research Encyclopedia of Anthropology **2023**, Jan. 31. DOI:10.1093/acrefore/9780190277734.013.837.

Archaeological examination of the transatlantic slave trade in West Africa largely began with investigations of European trade posts and forts on the coast and on major West African rivers. The predominant focus of subsequent work has been on African states and societies affected by or involved in Atlantic commerce and the slave trade. Major themes of research include AfricanûEuropean interactions and trade, political and economic effects in African societies, and the integration and consumption of Atlantic goods in daily life. Work has also expanded geographically beyond West African towns and states into hinterland and frontier landscapes far from the coast. Archaeological investigations of Atlantic era slavery developed in dialogue with the archaeology of the African diaspora in the Americas, yet their foci and objectives have not always been completely aligned. Slavery is more of a central theme in African diaspora archaeologyùbeing the primary formative historical force in the creation of the diasporaùthan it is in West African archaeology, where it is more often examined as a major feature of social, political, and economic life with uneven regional and societal effects. Archaeologists are also involved in the study, interpretation, and politics of African diaspora heritage tourism. Emerging approaches to the archaeology of Atlantic era slavery in West Africa include maritime archaeology and the archaeology of the formerly enslaved that returned to West Africa.

Keywords: archaeology | West Africa | slavery | Atlantic world | African archaeology | African diaspora | slave tr

ade | heritage tourism | historical archaeology | maritime archaeology

Richerson 2005

Peter Richerson & Robert Boyd, *Not by genes alone, How culture transformed human evolution*. (Chicago 2005).

Humans are a striking anomaly in the natural world. While we are similar to other mammals in many ways, our behavior sets us apart. Our unparalleled ability to adapt has allowed us to occupy virtually every habitat on earth, and our societies are larger, more complex, and more cooperative than any other mammal's. In "Not by Genes Alone", Peter J. Richerson and Robert Boyd argue that only a Darwinian theory of cultural evolution can explain these unique characteristics.

"Not by Genes Alone" offers a radical interpretation of human evolution, arguing that our ecological dominance and our singular social systems stem from a psychology uniquely adapted to create complex culture. Richerson and Boyd consider culture to be essential to human adaptation, as much a part of human biology as bipedal locomotion. Drawing on work in the fields of anthropology, political science, sociology, and economics – and building their case with such fascinating examples as kayaks, clever knots, and yams that require twelve men to carry them – Richerson and Boyd convincingly demonstrate that culture and biology are inextricably linked.

In abandoning the nature-versus-nurture debate as fundamentally misconceived, "Not by Genes Alone" is a truly original and groundbreaking theory of the role of culture in evolution and a book to be reckoned with for generations to come.

Richter 2018

Jürgen Richter, *Altsteinzeit, Der Weg der frühen Menschen von Afrika bis in die Mitte Europas*. (Stuttgart 2018).

Riemer 2007

Heiko Riemer, *When hunters started herding, Pastro-foragers and the complexity of Holocene economic change in the Western Desert of Egypt*. In: Michael Bollig, Olaf Bubenzer, Ralf Vogelsang & Hans-Peter Wotzka (Hrsg.), *Aridity, Change and Conflict in Africa, Proceedings of an International ACACIA Conference held at Königswinter, Germany October 1–3, 2003*. Colloquium Africanum 2 (Köln 2007), 105–144.

Despite the debate on early Holocene large bovids from the Nabta-Kiseiba region, faunal data from archaeological sites in the Eastern Sahara speak for an introduction and rapid spread of domestic cattle, goat and sheep around 6000 calBC within a highly mobile hunter-gatherer context. However, wild animals and hunting equipment are the major components of archaeological sites from the 6th millennium. Diversity in relief and water accessibility, and the seasonal influence of winter and summer rains formed the individual conditions of subsistence in which herding played only a minor role. It was not before the onset of deterioration of the Eastern Sahara, around 5000 calBC, and the following population agglomeration in the Nile Valley that herding and plant cultivation became dominant in the predynastic economies which can truly be labelled as the earliest Neolithic in Egypt.

Keywords: Pastro-foragers | domesticated animals | hunting | herding | arrow heads | economic change | Holocene | Neolithic | Egypt

Sadr 2008

Karim Sadr, *Invisible herders? The archaeology of Khoekhoe pastoralists*. Southern African Humanities **20** (2008), 179–203.

Although based on strong historical, linguistic and ethnographic evidence, the conclusion that immigrant Khoekhoe pastoralists introduced the first livestock to southernmost Africa finds no convincing archaeological support. This may be for a number of reasons. Perhaps nomadic pastoralists leave no archaeological traces; or migrations are difficult to detect. Archaeology and the other disciplines may not be looking at the same thing. Or maybe the migrations date to the second millennium AD, long after the first livestock had reached southernmost Africa. It is not easy to tell: Later Stone Age animal bones, stones and pots do not broadcast the language and identity of the people who discarded them.

Keywords: archaeology | Later Stone Age | southern Africa | Khoekhoen | pastoralists | herders | migration | diffusion.

Sage 1995

Rowan F. Sage, *Was low atmospheric CO2 during the Pleistocene a limiting factor for the origin of agriculture?* Global Change Biology **1** (1995), 93–106.

Agriculture originated independently in many distinct regions at approximately the same time in human history. This synchrony in agricultural origins indicates that a global factor may have controlled the timing of the transition from foraging to foodproducing economies. The global factor may have been a rise in atmospheric CO2 from below 200 to near 270 µmol mol-1 which occurred between 15,000 and 12,000 years ago. Atmospheric CO2 directly affects photosynthesis and plant productivity, with the largest proportional responses occurring below the current level of 350 µmol mol-1 In the late Pleistocene, CO2 levels near 200 µmol mol-1 may have been too low to support the level of productivity required for successful establishment of agriculture. Recent studies demonstrate that atmospheric

CO2 increase from 200 to 270 µmol mol-1 stimulates photosynthesis and biomass productivity of C3 plants by 25 % to 50 %, and greatly increases the performance of C3 plants relative to weedy C4 competitors. Rising CO2 also stimulates biological nitrogen fixation and enhances the capacity of plants to obtain limiting resources such as water and mineral nutrients. These results indicate that increases in productivity following the late Pleistocene rise in CO2 may have been substantial enough to have affected human subsistence patterns in ways that promoted the development of agriculture. Increasing CO2 may have simply removed a productivity barrier to successful domestication and cultivation of plants. Through effects on ecosystem productivity, rising CO2 may also have been a catalyst for agricultural origins by promoting population growth, sedentism, and novel social relationships that in turn led to domestication and cultivation of preferred plant resources.

Keywords: origin of agriculture, CO2 enrichment, crop domestication, global change, neolithic transition, photosynthesis

Sahle 2020

Yonatan Sahle, *Eastern African Stone Age*. Oxford Research Encyclopedia of Anthropology **2020**, Feb. 28. DOI:10.1093/acrefore/9780190854584.013.53.

The Stone Age record is longer and better documented in eastern Africa. Archaeological and fossil evidence derives particularly from sites within the Rift Valley of the region, often with secure radiometric age estimates. Despite a relatively late start and disproportionate focus on earlier periods and open-air sites within the rift, scientific research into the region's Stone Age record continues to play a central role in our understanding of human evolution.

Putative stone tools and cutmarked bones from two Late Pliocene (3.6–2.58 million years ago or Ma) contexts are exclusive to eastern Africa, as is conclusive evidence for these by 2.5 Ma. The earliest indisputable technological traces appear in the form of simple flakes and core tools as well as surface-modified bones. It is not clear what triggered this invention, or whether there was a more rudimentary precursor to it. Neither is it certain which hominin lineage started this technology, or if it hunted or only scavenged carcasses. Well-provenienced archaeological occurrences predating 2.0 Ma are limited to sites in Ethiopia and Kenya, becoming more common across eastern Africa and beyond only later. By 1.75 Ma, lithic technologies that included heavy-duty and large cutting tools appeared in Ethiopian and Kenyan localities. Several details about this technological tradition are still inadequately understood, although its appearance in eastern Africa roughly coincides with that of Homo erectus/ergaster. By far the longest-lived Stone Age tradition, hominins with such technologies successfully inhabited high-altitude environments as early as 1.5 Ma, and expanded within and beyond Africaeven earlier. Hunting and use of fire probably started in the earlier part of this technological tradition.

Small-sized and highly diverse tool forms gradually and variably started to replace heavy-duty and large cutting tools beginning c. 300 thousand years ago (ka). Conventional wisdom associates this technological and behavioral shift with the rise of Homo sapiens, although the oldest undisputed representatives of our species continued to use large cutting tools in eastern Africa after 200 ka. In addition to small retouched tools, often on products from prepared cores, significant innovations such as hafting and ranged weaponry emerged during the length of this technological tradition. Increasingly complex sociocultural behaviors, including mortuary practices, mark the later part of this period in eastern Africa. The consolidation of such skills and behaviors, besides ecological/demographic dynamics, may have enabled the ultimately decisive Out-of-Africa dispersal of our species, from eastern Africa, 50– 80 ka.

Even smaller and more diverse stone tool forms and other sociocultural innovations evolved in many areas of eastern Africa by 50 ka. Miniaturization and diversification allowed for the adoption of more complex technologies, including intentional blunting and microlithization. Some of these were used as parts of sophisticated composite implements, such as the bow and arrow. Complex behaviors involving personal ornamentation, symbolism, and rituals that resembled the lifeways of ethnographically known hunter-gatherer populations were similarly adopted. These dynamics eventually led to the development of new technological and socioeconomic systems marked by the inception of agriculture and attendant lifeways.

Keywords: prehistory | archaeology | stone tools | human evolution | Rift Valley

Seidensticker 2023

Dirk H. Seidensticker & Katharina V. M. Jungnickel, *Early Food Production in the Congo Basin*. Oxford Research Encyclopedia of Anthropology **2023**, Jan. 31. DOI:10.1093/acrefore/9780190277734.013.1226.

The introduction of food production into a specific region is among the most influential transitions in human history. It is frequently connected to other changes such as sedentism and population growth. Though most communities living in the Congo Basin today follow a relatively sedentary lifestyle with a slash-and-burn agri- or horticulture, hunting and fishing still contribute in large part to their subsistence. The lifestyle of historic forager communities and their sedentary neighbours changed significantly through colonialism. When and how food production started in the region is essentially not solved yet.

Studies suggest that the introduction of food production dates back to the 1st millennium BCE. However, empirical data are sparsely available, and Central African research is still marked significantly by its lack of physical evidence. Postcolonial archaeological research started earlier in other parts of Central Africa, while the Congo Basin saw large-scale, systematic research on its prehistory from the late 1970s. Investigations focused predominantly on the chrono-typological sequences, as ceramics are an easily encountered find category in the region. Archaeobotanical samples often underwent no further scrutiny or are still awaiting processing. Political instability in the Democratic Republic of the Congo in the 1990s and 2000s halted research in the Congo Basin. The western parts of Central Africa are among the better-researched areas. However, even there, only limited evidence of early food production has been uncovered. For a more concise picture, one should nonetheless discuss these two bodies of evidence in conjunction.

The available evidence suggests that during the 1st millennium BCE, pearl millet, originating from West Africa, was used in southern Cameroon and the Congo Basin, but presumably not in quantities that constituted a staple crop. The evidence for the use of cooking bananas is incomplete. Archaeobotanical remains are dominated by charred oil palm or wild Canarium, both equally unsuited as a staple food. Thus, the composition of the subsistence base and the reliance on food production of the ceramic-producing communities living in the Congo Basin during the 1st millennium BCE and the 1st millennium CE remain uncertain.

Keywords: food production | subsistence | central Africa | Congo rainforest | archaeology | archaeobotany | archaeozoology

Smith 2021

Andrew B. Smith, *Pastoralism in Africa*. Oxford Research Encyclopedia of Anthropology **2021**, May 26. DOI:10.1093/acrefore/9780190277734.013.1066.

To find the origins of African pastoralism it is important archaeologists look for the wild progenitors of animals. The wild sheep of Africa (Ammotragus lervia) were never domesticated, so all domestic sheep and goats came from the Near East. There has been some debate over whether there was an independent domestication of African cattle, because wild cattle (Bos primigenius) remains have been found in the Nile Valley. Genetic evidence shows that the source of African domesticated cattle was the Levant, some 8,000 years ago. Cattle spread across the Sahara as the environment was conducive to pastoralism, being well watered at this time. This lasted until after 5000 BP when the Intertropical Convergence Zone (ITCZ) retreated and the Sahara dried up to its present condition. The tsetse barrier also retreated at this time, allowing pastoralists to move south into West Africa and, via the Ethiopian highlands, to East Africa, arriving c.4500 BP, although it took another 1,000 years for them to fully adapt to the grasslands of southern Kenya and Tanzania. Domestic stock then went on to southern Africa via a tsetse-free corridor, arriving around 2000 BP. The effect of herding societies on local hunters throughout Africa appears to have been an initial rapprochement, with a later hardening of relations. In East Africa, this was probably due to the need to learn about the new environment with the help of local hunters and to adjust to new epizootic diseases. In southern Africa, the first pastoralists were primarily sheep herders during the 1st millennium BCE, with few cattle bones being found from this time. Pastoralists only became fully fledged cattle herdsmen around 1000 BP when they developed the attributes of the historic Khoekhoen. A further debate existed in southern Africa over whether pastoralism there was the result of immigrant herders who arrived in the northern Kalahari and then spread to the Cape, or if local hunters took up sheep herding.

Keywords: North Africa | Sahara | Sahel | East African pastoralism | South African pastoralism | hunter/herder relationships | epizootic diseases | Khoekhoen

Stewart 2005

Brian A. Stewart, *Charring patterns on reconstructed ceramics from Dunefield Midden, Implications for Khoekhoe vessel form and function.* Before Farming **2005**, i, 1–18.

Ethnographic observations from ceramic-using cultures around the world highlight a direct connection between ceramic vessel form and function. In southwestern southern Africa archaeological assemblages containing ceramic vessels associated historically with Khoekhoen pastoralists are heavily dominated by pots that conform to a very uniform shape – namely, amphora-like vessels with restricted necks and pointed bases. This paper uses charring patterns evident on the reconstructed ceramic assemblage from the late Holocene/pre-colonial Later Stone Age (LSA) site of Dunefield Midden, and additional ethnographic, ethnohistoric and experimental data, to identify which morphological attributes were adopted to facilitate the use of these vessels in cooking. It concludes that the observed charring patterns were caused by a cooking technique whereby the vessel bases were settled directly into the 'soft' cooking hearths at Dunefield Midden, and that the use of pointed bases represents a technological adaptation well suited to the Khoekhoen lifeway, one characterised by a high degree of mobility in largely arid landscapes.

Keywords: Ceramics | Khoekhoe | Later Stone Age | southern Africa | experimental archaeology

Tafelmaier 2020

Yvonne Tafelmaier, Guido Bataille, Viola Schmid, Andreas Taller & Manuel Will, *Methoden zur Analyse von Steinartefakten, Eine Übersicht.* (Wiesbaden 2020).

Thorpe 2007

S. K. S. Thorpe, R. L. Holder & R. H. Crompton, *Origin of Human Bipedalism as an Adaptation for Locomotion on Flexible Branches.* science **316** (2007), 1328–1331.

s316-1328-Supplement.pdf, s316-1328-Supplement1.mov, s316-1328-Supplement2.mov, s316-1328-Supplement3.mov, s316-1328-Comment.pdf

Human bipedalism is commonly thought to have evolved from a quadrupedal terrestrial precursor, yet some recent paleontological evidence suggests that adaptations for bipedalism arose in an arboreal context. However, the adaptive benefit of arboreal bipedalism has been unknown. Here we show that it allows the most arboreal great ape, the orangutan, to access supports too flexible to be negotiated otherwise. Orangutans react to branch flexibility like humans running on springy tracks, by increasing knee and hip extension, whereas all other primates do the reverse. Human bipedalism is thus less an innovation than an exploitation of a locomotor behavior retained from the common great ape ancestor.

Tribolo 2013

C. Tribolo et al., *OSL and TL dating of the Middle Stone Age sequence at Diepkloof Rock Shelter (South Africa), A clarification.* Journal of Archaeological Science **40** (2013), 3401–3411.

JArchSci40-3401-Supplement1.pdf

C. Tribolo, N. Mercier, E. Douville, J.-L. Joron, J.-L. Reyss, D. Rufer, N. Cantin, Y. Lefrais, C. E. Miller, G. Porraz, J. Parkington, J.-P. Rigaud & P.-J. Texier

Diepkloof Rock Shelter offers an exceptional opportunity to study the onset and evolution of both Still Bay (SB) and Howiesons Poort (HP) techno-complexes. However, previous age estimates based on luminescence dating of burnt quartzites (Tribolo et al., 2009) and of sediments (Jacobs et al., 2008) were not in agreement. Here, we present new luminescence ages for 17 rock samples (equivalent dose estimated with a SAR-ITL protocol instead of classical MAAD-TL) as well as for 5 sediment samples (equivalent dose estimated with SAR-single grain OSL protocol) and an update of the 22 previous age estimates for burnt lithics (modified calibration and beta dose estimates). While a good agreement between the rock and sediment ages is obtained, these estimates are still significantly older than those reported by Jacobs et al. (2008). After our own analyses of the sediment from Diepkloof, it is suspected that these authors did not correctly chose the parameters for the equivalent dose determination, leading to an underestimate of the equivalent doses, and thus of the ages.

From bottom to top, the mean ages are 100 ± 10 ka for stratigraphic unit (SU) Noël and 107 ± 11 ka for SU Mark (uncharacterized Lower MSA), 100 ± 10 ka for SU Lynn-Leo (Pre-SB type Lynn), 109 ± 10 ka for SUs Kim-Larry (SB), 105 ± 10 ka for SUs Kerry-Kate and 109 ± 10 ka for SU Jess (Early HP), 89 ± 8 ka for SU Jude (MSA type Jack), 77 ± 8 ka for SU John, 85 ± 9 ka for SU Fox, 83 ± 8 ka for SU Fred and 65 ± 8 ka for SU OB5 (Intermediate HP), 52 ± 5 ka for SUs OB2-4 (Late HP).

This chronology, together with the technological analyses, greatly modifies the current chrono-cultural model regarding the SB and the HP and has important archaeological implications. Indeed, SB and HP no longer appear as short-lived techno-complexes with synchronous appearances for each and restricted to Oxygen Isotopic Stage (OIS) 4 across South Africa, as suggested by Jacobs et al. (2008, 2012). Rather, the sequence of Diepkloof supports a long chronology model with an early appearance of both SB and HP in the first half of OIS 5 and a long duration of the HP into OIS 3. These new dates imply that different technological

traditions coexisted during OIS 5 and 4 in southern Africa and that SB and HP can no longer be considered as horizon markers.

Keywords: Middle Stone Age | Howiesons Poort | Still Bay | TL | OSL

Trigger 2003

Bruce G. Trigger, *Understanding Early Civilizations, A Comparative Study*. (Cambridge 2003). <https://doi.org/10.1017/CBO9780511840630> (2007).

This book offers the first detailed comparative study of the seven best-documented early civilizations: ancient Egypt and Mesopotamia, Shang China, the Aztecs and adjacent peoples in the Valley of Mexico, the Classic Maya, the Inka, and the Yoruba. Unlike previous studies, equal attention is paid to similarities and differences in their sociopolitical organization, economic systems, religion, and culture. Many of this study's findings are surprising and provocative. Agricultural systems, technologies, and economic behaviour turn out to have been far more diverse than was expected. Yet only two basic types of political organization are found – city-states and territorial states – and they influenced economic behaviour at least as much as did environmental differences. Underlying various religious beliefs was a single, distinctive pattern that is unique to early civilization and must have developed independently in different regions of the world. Many other shared religious beliefs appear to have been transformations of a shared heritage from earlier times. Esteemed lifestyles that differed idiosyncratically from one early civilization to another influenced human behaviour in ways that often persisted despite changing material and political circumstances. These findings and many others challenge not only current understandings of early civilizations but also the theoretical foundations of modern archaeology and anthropology. The key to understanding early civilizations lies not in their historical connections but in what they can tell us about similarities and differences in human behaviour.

Bruce G. Trigger was James McGill Professor in the Department of Anthropology at McGill University. He received his PhD from Yale University and has carried out archaeological research in Egypt and the Sudan. His interests included the comparative study of early civilizations, the history of archaeology, and archaeological and anthropological theory. He received various scholarly awards, including the presitigious Prix Leon-Germ from the Quebec government, for his sustained contributions to the social sciences. He was an honorary Fellow of the Society of Antiquaries of Scotland and an honorary member of the Prehistoric Society (U.K.).

Wendorf 1994

Fred Wendorf & Romuald Schild, *Are the Early Holocene Cattle in the Eastern Sahara Domestic or Wild?* Evolutionary Anthropology **3** (1994), 118–128.

Questions relating to the antiquity of domestic cattle in the Sahara are among the most controversial in North African prehistory. It is generally believed that cattle were first domesticated in southwest Asia, particularly Anatolia, or in southeast Europe, where their remains have been found in several sites dated between 9,000 and 8,000 years ago. The discovery, in several small sites in the Western Desert of Egypt, of large bovid bones identified as domestic cattle and having radiocarbon dates ranging between 9,500 and 8,000 B.P. has raised the possibility that there was a separate, independent center for cattle domestication in northeast Africa (Fig. 1). However, it has not been universally accepted that these bones are from cattle or, if so, that the cattle were domestic.

Wood 2002

Bernard Wood, *Hominid revelations from Chad*. nature **418** (2002), 133–135.

The story of human origins in Africa takes a twist with the description of a 6–7-million-year-old cranium from Chad. The discovery hints at the likely diversity of early hominids.

Wood 2011

Bernard Wood & Terry Harrison, *The evolutionary context of the first hominins*. nature **470** (2011), 347–352.

The relationships among the living apes and modern humans have effectively been resolved, but it is much more difficult to locate fossil apes on the tree of life because shared skeletal morphology does not always mean shared recent evolutionary history. Sorting fossil taxa into those that belong on the branch of the tree of life that leads to modern humans from those that belong on other closely related branches is a considerable challenge.

Wotzka 2019

Hans-Peter Wotzka, *Experimenteller Anbau von Perlhirse (Pennisetum glaucum) im äquatorialen Regenwald des Inneren Kongobeckens, August–November 2016*. In: Jutta Meurers-Balke, Tanja Zerl & Renate Gerlach (Hrsg.), *Auf dem Holzweg . . . , Eine Würdigung für Ursula Tegtmeier*. Archäologische Berichte 30 (Kerpen-Loogh 2019), 269–284.

An agricultural experiment was conducted near the equator in Democratic Republic of the Congo to test the widely held assumption that successful pearl millet cultivation should be impossible in Tropical Rainforest climate lacking incisive rainfall seasonality. Two markedly different varieties of pearl millet, one presently grown by peasants in Ghana, the other bought from an internet seed market, were sown out, and taken to flowering, maturity, grain fill, and a formidable harvest of germinable seeds right across the most humid months of the year, with minimal labour input and without difficulty. The seasonality hypothesis was therefore disproved, an outcome consistent with a number of documented historical and present-day African cultivation practices under Tropical Rainforest and Tropical Monsoon climate conditions. It follows that pearl millet has a much wider habitat tolerance than is reflected in majority patterns of its modern use, primarily in arid or semi-arid environments. Implications for palaeoenvironmental reconstruction as well as Central African Iron Age agriculture and human nutrition are discussed. In accordance with new finds of securely dated Late Iron Age charred pearl millet grains there is now scope for the hypothesis that the species was both cultivable and cultivated in the Interior Congo Basin not only during a short-term Early Iron Age climate episode of more seasonal rainfall variability but, possibly without interruption, for some two millennia until its abandonment in late pre-colonial times and subsequent complete oblivion.

Keywords: Experimental archaeology | Central Africa | tropical rainforest | Iron Age | agriculture | climate history | vegetation history | human palaeonutrition

Nahe dem Äquator in der Demokratischen Republik Kongo wurde ein Anbauexperiment unternommen, um die verbreitete These zu überprüfen, dass die Perlhirse in Tropischem Regenwaldklima wegen dort mangelnder Niederschlagssaisonalität nicht gedeihen könne. Zwei sehr verschiedene Perlhirse-Sorten, eine von Kleinbauern Ghanas genutzte sowie eine im Internethandel erworbene Varietät, wurden ausgesät und bei geringem Arbeitsaufwand problemlos zur Blüte, Kornfüllung

und Reife gebracht. Der gesamte Versuch, einschließlich einer beachtlichen Ernte keimfähiger Früchte, erstreckte sich über die regenreichsten Wochen des äquatorialen Jahres. Die Saisonalitätshypothese wurde somit widerlegt. Das Versuchsergebnis steht im Einklang mit verschiedenen Dokumentationen zu historischen und heutigen Anbaupraktiken unter Tropischem Regenwald- und Tropischem Monsunklima. Die Perlhirse hat demnach einen deutlich weiteren ökologischen Toleranzbereich als die Hauptmuster ihrer gegenwärtigen, vor allem auf aride und semiaride Habitate beschränkten Nutzung erkennen lassen. Implikationen für die Paläoumweltrekonstruktion sowie Landwirtschaft und menschliche Ernährung während der zentralafrikanischen Eisenzeit werden erörtert. Unter Einbeziehung neuer, zuverlässig in die späte Eisenzeit datierter Funde verkohlter Körner liegt nun die Hypothese nahe, dass der Perlhirseanbau nicht, wie bislang weithin angenommen, nur während einer kurzzeitigen früheisenzeitlichen Klimaschwankung hin zu ausgeprägter Niederschlagssaisonalität erfolgreich in der Regenwaldzone des Inneren Kongobeckens praktiziert werden konnte, sondern dort möglicherweise kontinuierlich über rund zwei Jahrtausende hinweg bedeutend blieb, bis man ihn in spätvorkolonialer Zeit aufgab und komplett vergaß.

Keywords: Experimentelle Archäologie | Zentralafrika | Tropischer Regenwald | Eisenzeit | Landwirtschaft | Klimageschichte | Vegetationsgeschichte | Ernährungsgeschichte

Wynn 1981

Thomas Wynn, *The Intelligence of Oldowan Hominids*. Journal of Human Evolution **10** (1981), 529–541.

This article uses Piagetian genetic epistemology to evaluate the intelligence of Oldowan hominids. From the analysis of the geometry of two-million-year-old artifacts from Olduvai Gorge it is concluded that the hominids who made the tools possessed pre-operational intelligence. Pre-operational intelligence employs such organizational features as trial-and-error and control of single variables but lacks such important modern features as true classification and pre-correction of errors. Pre-operational intelligence is also typical of modern pongids. This implies that Oldowan hominids were not remarkably intelligent by hominoid standards and that evolution of intelligence was not significant in human evolution until after about 1.6 million years ago, at which time it became an important factor in the rapid increase in reliance on culture.

Zeuske 2013

Michael Zeuske, *Handbuch Geschichte der Sklaverei, Eine Globalgeschichte von den Anfängen bis zur Gegenwart*. (Berlin ^{2}2019).

Zeuske_Handbuch-Sklaverei-Abb.zip

Sklaverei und Sklavenhandel sowie Menschenjagd, Kidnapping, Sklavenfang, zusammengefasst unter dem Begriff slaving, existierten seit Tausenden von Jahren und es gibt sie, trotz der Jahrestags-Feiern der Abolitionen, noch heute.

Sklaverei oder besser, Sklavereien, stellen wichtige Dimensionen eines welthistorischen Prozesses dar mit Entwicklungsepochen, Plateaus, Räumen, Formen und Typen, weniger eine einzige festgefügte Rechts-Institution oder eine eigene Epoche. Gegenwärtig gibt es in absoluten Zahlen sogar mehr Sklavinnen und Sklaven als zu Zeiten der "großen" Sklavereien und Sklavenhandelssysteme.

Zeuske 2018

Michael Zeuske, *Sklaverei, Eine Menschheitsgeschichte von der Steinzeit bis heute*. (Ditzingen 2018).

„Sklaverei“ – das Wort lässt an afrikanische Arbeiter auf amerikanischen Plantagen denken. Doch Verschleppungen und Zwangsarbeit gab es schon, als die Menschen gerade erst sesshaft geworden waren, und es gab sie so gut wie überall.

Michael Zeuske führt in dieser umfassenden Darstellung durch die gesamte Geschichte der Versklavten und der Sklaverei in allen Weltgegenden. Er macht seine Leser mit chinesischen Kindersklaven genauso bekannt wie mit osmanischen Elitesklaven oder den „Hofmohren“ in preußischen Residenzstädten – und er blickt in die Gegenwart. Denn auch heute werden Menschen noch wie Waren behandelt – von der Zwangsprostituierten bis hin zum Kindersoldaten.