Liste erstellt am 2015-07-16

References

Aktuell

Kehdy 2015

Fernanda S. G. Kehdy et al., *Origin and dynamics of admixture in Brazilians and its effect on the pattern of deleterious mutations.* PNAS **112** (2015), 8696–8701.

Fernanda S. G. Kehdy, Mateus H. Gouveia, Moara Machado, Wagner C. S. Magalhães, Andrea R. Horimoto, Bernardo L. Horta, Rennan G. Moreira, Thiago P. Leal, Marilia O. Scliar, Giordano B. Soares-Souza, Fernanda Rodrigues-Soares, Gilderlanio S. Araújo, Roxana Zamudio, Hanaisa P. Sant Anna, Hadassa C. Santos, Nubia E. Duarte, Rosemeire L. Fiaccone, Camila A. Figueiredo, Thiago M. Silva, Gustavo N. O. Costa, Sandra Beleza, Douglas E. Berg, Lilia Cabrera, Guilherme Debortoli, Denise Duarte, Silvia Ghirotto, Robert H. Gilman, Vanessa F. Gonçalves, Andrea R. Marrero, Yara C. Muniz, Hansi Weissensteiner, Meredith Yeager, Laura C. Rodrigues, Mauricio L. Barreto, M. Fernanda Lima-Costa, Alexandre C. Pereira, Maíra R. Rodrigues, Eduardo Tarazona-Santos & The Brazilian E. P. I. G. E. N. Project Consortium

While South Americans are underrepresented in human genomic diversity studies, Brazil has been a classical model for population genetics studies on admixture. We present the results of the EPIGEN Brazil Initiative, the most comprehensive up-to-date genomic analysis of any Latin-American population. A population-based genomewide analysis of 6,487 individuals was performed in the context of worldwide genomic diversity to elucidate how ancestry, kinship, and inbreeding interact in three populations with different histories from the Northeast (African ancestry: 50 %), Southeast, and South (both with European ancestry >70 %) of Brazil. We showed that ancestry-positive assortative mating permeated Brazilian history. We traced European ancestry in the Southeast/South to a wider European/Middle Eastern region with respect to the Northeast, where ancestry seems restricted to Iberia. By developing an approximate Bayesian computation framework, we infer more recent European immigration to the Southeast/South than to the Northeast. Also, the observed low Native-American ancestry (6–8 %) was mostly introduced in different regions of Brazil soon after the European Conquest. We broadened our understanding of the African diaspora, the major destination of which was Brazil, by revealing that Brazilians display two within-Africa ancestry components: one associated with non-Bantu/western Africans (more evident in the Northeast and African Americans) and one associated with Bantu/eastern Africans (more present in the Southeast/South). Furthermore, the whole-genome analysis of 30 individuals (42-fold deep coverage) shows that continental admixture rather than local post-Columbian history is the main and complex determinant of the individual amount of deleterious genotypes.

Keywords: Latin America | population genetics | Salvador SCAALA | Bambuí Cohort Study of Ageing | Pelotas Birth Cohort Study

Significance: The EPIGEN Brazil Project is the largest Latin-American initiative to study the genomic diversity of admixed populations and its effect on phenotypes. We studied 6,487 Brazilians from three population-based cohorts with different geographic and demographic backgrounds. We identified ancestry components of these populations at a previously unmatched geographic resolution.

We broadened our understanding of the African diaspora, the principal destination of which was Brazil, by revealing an African ancestry component that likely derives from the slave trade from Bantu/eastern African populations. In the context of the current debate about how the pattern of deleterious mutations varies between Africans and Europeans, we use whole-genome data to show that continental admixture is the main and complex determinant of the amount of deleterious genotypes in admixed individuals.

Witze 2015

Alexandra Witze, *The Quake Hunters*. nature **523** (2015), 142–144.

Meet the seismologists who work around the clock to pinpoint major earthquakes anywhere on Earth.

If a quake is big enough, PAGER sends out alerts automatically. At 12:34 a.m., the system used the initial magnitude of 7.5 to predict between 100 and 1,000 deaths, and damages between US$ 10 million and $ 100 million. That ranked it an 'orange', the second-highest alert on the PAGER colour-coded system. "That's when we knew it was going to be deadly," Wald says. Then Wald took some data on how much the ground had moved and how widespread the aftershocks were, and manually fed the fresh information into PAGER. The alert immediately escalated to red, estimating between 1,000 and 10,000 deaths. It was 4:14 a.m. In Washington DC, Gari Mayberry's mobile phone woke her up with the first NEIC alert. As the Colorado team released its analyses, Mayberry quickly fed information to her bosses, who help to coordinate search-and-rescue teams for international disasters. In such situations, she says, every minute counts. Within hours, the US government had a team on the way to Nepal.

Yoon 2015

Soweon Yoon & Anil K. Jain, *Longitudinal study of fingerprint recognition*. PNAS **112** (2015), 8555–8560.

Human identification by fingerprints is based on the fundamental premise that ridge patterns from distinct fingers are different (uniqueness) and a fingerprint pattern does not change over time (persistence). Although the uniqueness of fingerprints has been investigated by developing statistical models to estimate the probability of error in comparing two random samples of fingerprints, the persistence of fingerprints has remained a general belief based on only a few case studies. In this study, fingerprint match (similarity) scores are analyzed by multilevel statistical models with covariates such as time interval between two fingerprints in comparison, subject's age, and fingerprint image quality. Longitudinal fingerprint records of 15,597 subjects are sampled from an operational fingerprint database such that each individual has at least five 10-print records over a minimum time span of 5 y. In regard to the persistence of fingerprints, the longitudinal analysis on a single (right index) finger demonstrates that (i) genuine match scores tend to significantly decrease when time interval between two fingerprints in comparison increases, whereas the change in impostor match scores is negligible; and (ii) fingerprint recognition accuracy at operational settings, nevertheless, tends to be stable as the time interval increases up to 12 y, the maximum time span in the dataset. However, the uncertainty of temporal stability of fingerprint recognition accuracy becomes substantially large if either of the two fingerprints being compared is of poor quality. The conclusions drawn from 10-finger fusion analysis coincide with the conclusions from single-finger analysis.

Keywords: biometrics | fingerprint recognition | persistence of fingerprints | longitudinal data analysis | multilevel statistical model

Significance: Fingerprint recognition, which is considered to be a reliable means for human identification, has been used in many applications ranging from law

enforcement and forensics to unlocking mobile phones. Despite its successful deployment, the fundamental premise of fingerprint-based identification—persistence and uniqueness of fingerprints—has not yet been well studied, resulting in challenges to the admissibility of friction ridge evidence in courts of law. This study investigates the tendency of fingerprint similarity scores and recognition accuracy with respect to covariates characterizing properties of fingerprint impressions and demographics of subjects, including time interval between two fingerprints being compared in regard to the persistence of fingerprints. A multilevel statistical analysis is conducted with a longitudinal dataset of fingerprint records from 15,597 subjects.

Archäologie

Callaghan 2015

Richard T. Callaghan, *Drift voyages across the mid-Atlantic*. Antiquity **89** (2015), 724–731.

Despite resistance to the idea of pre-Columbian crossings of the mid-Atlantic in history and archaeology, such crossings are likely. Crossings need not have been intentional, and numerous examples to support this theory exist from recent times. Many of these crossings are due to shipwreck and were accomplished with small, open vessels. In some cases the occupants survived the voyage, in others they did not. Survival of the occupants was not necessary for Old World artefacts to be found in New World pre-Columbian contexts.

From the simulations it is clear that for most of the year vessels disabled or lost at sea off north-west Africa would probably make landfall in the Americas. This is particularly true between September and June. The majority of vessels would make landfall in the Antilles from September to January. The Antilles themselves act as a screen preventing large numbers of vessels from making landfall on the Central or North American mainland; some do, however, make landfall on the mainland, especially in lower Central America. For landfalls in the Antilles the average duration of voyages is about 70 days, and for Central America and Mexico the average is about 120 days. This is well within the 200-day limit for open boat survival recorded for the Pacific and for the Antilles within recent drifts and survival experiments. Yet as noted above, survivors are not necessary for Old World artefacts to be found in New World pre-Columbian contexts.

The issue of pre-Columbian transoceanic crossings of the mid-Atlantic (and other transoceanic crossings) should be viewed with a healthy scepticism, but they should also be evaluated on the likelihood of such events occurring. It is not difficult to gain some sense of these by using similar simulations to those that are used here. It is also possible to evaluate the chance of there being human survivors. In the case of a mid-Atlantic crossing it is almost inevitable given the evidence for watercraft 8000 years ago. This is a long time for even rare events to add up to a significant number.

Bibel

Kitchen 2001

Kenneth A. Kitchen, *How We Know When Solomon Ruled, Synchronisms with Egyptian and Assyrian rulers hold the key to dates of Israelite kings*. Biblical Archaeology Review **27** (2001), v, 32–37, 58.

We have seen several lines of evidence converge to place Solomon in the mid-tenth century B.C. The most direct are the Assyrian and Egyptian king lists, which agree very nicely with the Biblical royal chronologies and point to 970–930 B.C. as the time of Solomon's rule. Our date for Solomon also dovetails with geopolitical realities. Pharaohs were marrying their daughters to foreign rulers; mini-empires such as David's and Solomon's could flourish in the centuries between 1200 and 900 B.C., when the power of the great empires to the north and south had waned.

The story of Solomon cannot have been fiction dreamed up in the early Hellenistic period (300 B.C.), as some Biblical minimalists claim. At that late date there were no resources upon which to base such "dreams," especially with such accuracy as we find from all these sources. Solomon's dates are secure.

Datierung

Pettitt 2015

Paul Pettitt & Paul Bahn, *An alternative chronology for the art of Chauvet cave*. Antiquity **89** (2015), 542–553.

Antiquity089-0542-Supplement.pdf

It is now 20 years since the discovery of the Grotte Chauvet with its impressive cave art, but controversy continues over the antiquity of the images. Radiocarbon assays have been used to argue that the 'black series' charcoal drawings date to the Aurignacian period, more than 20 000 years earlier than traditional stylistic models would suggest. This paper questions the validity of the radiometric dating and cautions against reliance solely on the date of the charcoal. Instead, the authors propose an alternative chronology for the art of Chauvet based on stylistic comparanda, palaeontological remains and stratigraphic evidence.

Keywords: Chauvet-Pont-d'Arc | Upper Palaeolithic | Aurignacian | Gravettian,Magdalenian | Solutrean | cave art | radiocarbon dating | cave bear

Weninger 2009

Bernhard Weninger et al., *A Radiocarbon Database for the Mesolithic and Early Neolithic in Northwest Europe*. In: Philippe Crombé, Mark van Strydonck, Joris Sergant, Mathieu Boudin & Machteld Bats (Hrsg.), *Chronology and Evolution within the Mesolithic of North-West Europe*, *Proceedings of an International Meeting. Brussels. May 30th–June 1st 2007*. (Newcastle 2009), 143–176.

Bernhard Weninger, Kevan Edinborough, Marcel Bradtmöller, Mark Collard, Philippe Crombé, Uwe Danzeglocke, Daniela Holst, Olaf Jöris, Marcel Niekus, Stephen Shennan & Rick Schulting

We have collated an extensive regional radiocarbon database for the Mesolithic and Early Neolithic in Northwest Europe in the age range 10,000 to 4000 yrs 14C-BP (i.e. 11.7 ka calBP to 5000 calBP). The database contains more than 4100 individual 14C-ages (each defined by its specific laboratory code), and which are derived from c. 1000 different archaeological sites. The database is fully (95 %) georeferenced and covers the countries Belgium, Denmark, England/Wales, Ireland, the Netherlands, and Scotland.

Grabung

Roustaei 2015

Kourosh Roustaei, Marjan Mashkour & Margareta Tengberg, *Tappeh Sang—Chakhmaq and the beginning of the Neolithic in north-east Iran*. Antiquity **89** (2015), 573–595.

Attempts to understand the origins of domestication and sedentary settlement in the Near East have traditionally focused on the Fertile Crescent. Beyond this region, however, in the foothills of the Alborz Mountains of north-eastern Iran, evidence has emerged that charts the Neolithic transition over a period of 1500 years. Investigations at the twin mounds of Tappeh Sang—Chakhmaq have revealed pre-pottery and pottery-Neolithic occupation in a sequence long enough to document the evolving exploitation of plants and animals leading to the development of a permanent, agro-pastoral community during the eighth to sixth millennia BC. The continuous occupation of this settlement during this crucial transition allows significant changes in lifestyle to be mapped, and provides a new framework for the earliest Neolithic occupation of Iran.

Keywords: Tappeh Sang—Chakhmaq | north-east Iran | Neolithic transition | settlement

Klima

Armitage 2015

Simon J. Armitage, Charlie S. Bristow & Nick A. Drake, *West African monsoon dynamics inferred from abrupt fluctuations of Lake Mega-Chad*. PNAS **112** (2015), 8543–8548.

From the deglacial period to the mid-Holocene, North Africa was characterized by much wetter conditions than today. The broad timing of this period, termed the African Humid Period, is well known. However, the rapidity of the onset and termination of the African Humid Period are contested, with strong evidence for both abrupt and gradual change. We use optically stimulated luminescence dating of dunes, shorelines, and fluviolacustrine deposits to reconstruct the fluctuations of Lake Mega-Chad, which was the largest pluvial lake in Africa. Humid conditions first occur at ≈15 ka, and by 11.5 ka, Lake Mega-Chad had reached a highstand, which persisted until 5.0 ka. Lake levels fell rapidly at ≈5 ka, indicating abrupt aridification across the entire Lake Mega-Chad Basin. This record provides strong terrestrial evidence that the African Humid Period ended abruptly, supporting the hypothesis that the Africanmonsoon responds to insolation forcing in a markedly nonlinear manner. In addition, Lake Mega-Chad exerts strong control on global biogeochemical cycles because the northern (Bodélé) basin is currently the world's greatest single dust source and possibly an important source of limiting nutrients for both the Amazon Basin and equatorial Atlantic. However, we demonstrate that the final desiccation of the Bodélé Basin occurred around 1 ka. Consequently, the present-day mode and scale of dust production from the Bodélé Basin cannot have occurred before 1 ka, suggesting that its role in fertilizing marine and terrestrial ecosystems is either overstated or geologically recent.

Keywords: African monsoon | Lake Chad | dust | African Humid Period

Significance: North Africa was wetter 15,000–5,000 years ago than today, with wetlands and lakes formed in the Sahara due to an enhanced monsoon. We reconstruct the lake-level history of Lake MegaChad, when it was the largest African lake, and demonstrate that this humid period ended abruptly 5,000 years ago,

indicating that the African monsoon exhibits a nonlinear response to insolation forcing. The northern basin of Lake Mega-Chad, currently the world's greatest dust source, became dry around 1,000 years ago. Prior to that time dust output from the northern basin would have been limited, and suggestions that this dust plays an important role in fertilizing Atlantic and Amazonian ecosystems are either overstated or only true for the last thousand years.

Kupfer

Craddock 2000

Paul T. Craddock, *From hearth to furnace, Evidences for the earliest metal smelting technologies in the Eastern Mediterranean.* Paléorient **26** (2000), ii, 151–165.

The first controlled use of fire in metallurgy dates from the eighth millennium BC, when native copper was deliberately heated to form artifacts. Problems how to distinguish between native copper and smelted copper are addressed, especially what concerns the role of iron in copper. It is shown that the technological roots of metallurgy have nothing in common with pottery kilns. Metallurgy is an independent development. The decisive factor was the introduction of charcoal that was important to produce reducing conditions during firing. The earliest stages in metallurgy are represented by a nonslagging process. Reduction of ores was carried out in crucibles as exemplified by finds from Anatolia, Iran, Jordan, and the Iberian Peninsula.

Special attention is paid to the putative early stages of metallurgy claimed to exist at Timna. The socalled Neolithic and Chalcolithic copper smelting there is critically discussed in the light of radio carbon data. Wind-powered furnaces played a major role in Early Bronze Age copper metallurgy, as exemplified by sites in the Feinan-area, in Wadi Dara, Egypt, and at numerous sites in the Aegean. Later, artificial air supply by bellows and tuyeres was introduced.

Muhly 1993

J. D. Muhly, *Early Bronze Age Tin and the Taurus.* American Journal of Archaeology **97** (1993), 239–253.

The sources of tin being exploited by the metalworkers of Early Bronze Age Anatolia remain to be identified. While K.A. Yener and P.J. Vandiver ("Tin Processing at Göltepe, an Early Bronze Age Site in Anatolia", supra pp. 207-38) present very impressive evidence for some sort of mining and metalworking activity at Kestel and Göltepe, they fail to demonstrate that tin must have been the metal being sought after in these operations. Nor can it be shown that the general area of southeastern Anatolia was a significant center of bronze metallurgy during the third millennium. Even Egypt, with well-documented sources of tin, seems to have made little use of bronze before ca. 2000 B.C.

Stöllner 2011

Thomas Stöllner et al., *Tin from Kazakhstan – Steppe Tin for the West?* In: Ünsal Yalçin (Hrsg.), *Anatolian Metal V.* Der Anschnitt, Beiheft 24 (Bochum 2011), 231–251.

Thomas Stöllner, Zeinolla Samaschev, Sergej Berdenov, Jan Cierny, Monika Doll, Jennifer Garner, Anton Gontscharov, Alexander Gorelik, Andreas Hauptmann, Rainer Herd, Galina A. Kusch, Viktor Merz, Torsten Riese, Beate Sikorski & Benno Zickgraf

The lead isotope proportions of the eastern Kazakh metals are of importance because they plot at a range which groups with bronze artifacts from Troy (IIg) and the Troas in Northwest Anatolia. What should not be forgotten is that the famous Troy IIg had trading contacts to the steppe zone: it is not by mere chance that the famous Lapislazuli axe (whose origin is likely the Afghan Badakhshan Mountains) found its best parallels in the southern Russian hoard of Borodino.

Yener 1987

K. Aslıhan Yener & Hadi Özbal, *Tin in the Turkish Taurus mountains, The Bolkardağ mining district*. Antiquity **61** (1987), 220–226.

The sources of tin in the ancient Near East have been a long-standing puzzle. Anatolia is a key area,for it has copper in vast quantities, and silver. Since no substantial or workable deposits of tin seemed to exist in Turkey, an external source for tin bronzes in Anatolia has seemed necessary. The new finds reported here change that picture, as they reveal a major source of the metal in the Taurus mountains, on the south coast of Anatolia.

Yener 1989

K. Aslıhan Yener, Hadi Özbal, Ergun Kaptan, A. Necip Pehlivan & Martha Goodway, *Kestel: An Early Bronze Age Source of Tin Ore in the Taurus Mountains, Turkey*. science **244** (1989), 200–203.

An ancent mine located at Kestel on the outskirts of Nigde, in the Taurus Mountains of south central Turkey, has been dated by radiocarbon and pottery type to the third millennium B.C. Archeological soundings in the mine located cassiterite (tin oxide) in the detritus of ancient mining activity. Cassiterite is also present in veins and, as placer deposits, in streams nearby. Since tin is used with copper in order to form bronze but is thinly distributed in the earth's crust, the presence of tin ore at Kestel offers a source for the much sought after tin of the Bronze Age. The discovery of an ancient mine containing cassiterite sheds light on this question, but also greatly complicates the accepted picture of regional economic patterns in the highland resource areas of Anatolia and of interregional metal exchange in the formative periods of urbanization and metal use in the eastern Mediterranean.

Yener 2015

K. Aslıhan Yener et al., *New tin mines and production sites near Kültepe in Turkey, A third-millennium BC highland production model*. Antiquity **89** (2015), 596–612.

K. Aslıhan Yener, Fikri Kulakoğlu, Evren Yazgan, Ryoichi Kontani, Yuichi S. Hayakawa, Joseph W. Lehner, Gonca Dardeniz, Güzel Öztürk, Michael Johnson, Ergun Kaptan & Abdullah Hacar

An unexpected new source of tin was recently located at Hisarcik, in the foothills of the Mount Erciyes volcano in the Kayseri Plain, close to the Bronze Age town of Kültepe, ancient Kanesh and home to a colony of Assyrian traders. Volcanoes in Turkey have always been associated with obsidian sources but were not known to be a major source of heavy metals, much less tin. X-ray fluorescence analyses of the Hisarcik ores revealed the presence of minerals suitable for the production of complex copper alloys, and sufficient tin and arsenic content to produce tin-bronze. These findings revise our understanding of bronze production in Anatolia in the third millennium BC and demand a re-evaluation of Assyrian trade routes and the position of the Early Bronze Age societies of Anatolia within that network.

Keywords: Kültepe Kanesh | Bolkardağ | Kestel | Anatolia | Bronze Age | pXRF | tin | trade | networks

Story or Book

Belilovsky 2015

Anatoly Belilovsky, *The Ravelled Sleeve of Care, Ties that bind*. nature **523** (2015), 250.

Anatoly Belilovsky was born in what is now Ukraine, learned English from Star Trek reruns, worked his way through a US college by teaching Russian while majoring in chemistry, and has, for the past 25 years, been a paediatrician in New York, in a practice where English is the fourth most commonly spoken language.

Lilley 2015

Ian Lilley, Michael Heckenberger, John Krigbaum & Barry Cunliffe, *The Cambridge world prehistory*. Antiquity **89** (2015), 761–770.

Colin Renfrew & Paul Bahn (ed.). The Cambridge world prehistory. 3 volumes. xxxii+2049 pages, numerous b&w illustrations. 2014. Cambridge: Cambridge University Press; 978-0-521-11993-1 hardback £450 & $675.

Another issue is that the volume [1] is not nearly as well integrated as it could and should be. I understand that the editors think it premature to synthesise the archaeology, linguistics and genetics in a unified narrative. They—or their Cambridge University Press collaborators—could, however, have done much more cross-referencing both within and between the four main sections. References to processes and events discussed in two or more contributions seem random for the most part, and key dates or interpretations of important matters often vary substantially without even passing acknowledgement that other contributors might have different ideas, or might have something complementary to add.

This [2] is no doubt the high water mark of global compendiums and—dare we say—may be the last, as electronic sharing of material becomes the norm. Yet even though it is a magisterial treatment, who will use it? This is a book written by archaeologists for archaeologists. At the very least it calls out for a companion volume: prehistory and beyond, critical world prehistory or archaeologies of the future. Nonetheless, we cannot imagine any major library that should not have a copy of these volumes as the best global overview to date.

The volume [3] is a resounding success. It is an invaluable and unparalleled resource, allowing the reader to get quickly into a chosen subject area, guided by an expert overview and supported by a well-chosen bibliography. It will be the first port of call for all students for years to come.