

References

Aktuell

ABDELLAOUI 2014

Abdel Abdellaoui, Karin J. H. Verweij & Brendan P. Zietsch, *No evidence for genetic assortative mating beyond that due to population stratification*. [PNAS 111 \(2014\), E4137](#).

Genetic population stratification is a major driver of genetic spouse similarities as a consequence of ethnic or social homogamy and/or geographic proximity. Social homogamy occurs when individuals from similar social, ethnic, or demographic backgrounds are more likely to mate. Residential proximity is a strong predictor of who marries whom, and European ancestry within the United States is not independent from geographic location or social group.

BECKER 2014

Sandy Becker, *Rhubarb pie and science*. [science 345 \(2014\), 1534](#).

He concluded, I guess, that I knew how to follow a recipe and probably had enough brains to follow one written in metric units, because he offered me a job as a technician in his lab. A perk of being a Wesleyan employee is that you get to take courses for free, so I gradually filled the holes in my scientific education. Over the years, I've taken 17 biology courses, if you count organic chemistry, and I now have three Wesleyan graduate degrees, two in biology and one in science journalism. I've thought once or twice about getting a Ph.D., but I haven't done it. I guess I just don't want my boss's job. Principal investigators (PIs) slave away, teaching and writing grants, and the data come to them secondhand.

Being an academic research technician is not a very profitable career—not, at least, at a small private university. In 2005, I left the university to work for a biotechnology company in Massachusetts and was paid twice as much. That biotech company may cure macular degeneration someday—I hope they do because I got stock options—but what I really want to do is find stuff out. So, after 3 years, I returned to Laura's lab for another few years of sometimes exasperating but always engrossing basic research.

DOMINGUE 2014

Benjamin W. Domingue, Jason M. Fletcher, Dalton Conley & Jason D. Boardman, *Interpreting GAM, Reply to Abdellaoui et al.* [PNAS 111 \(2014\), E4138](#).

... presuming that potential spouses are actually sorting on observable phenotypes (not on unobservable SNPs). Indeed, many traits (e.g., height, education, appearance, and even political views) on which spouses are known to sort have a genetic basis. As such, in a highly admixed population such as that of the United States, we believe it implausible that GAM is merely due to sorting on ancestry. We view our paper as a descriptive exercise that lays the foundation for future work in this area—i.e., specific SNP, gene, and pathway level sorting within the marriage market.

FRANCO 2014

Annie Franco, Neil Malhotra & Gabor Simonovits, *Publication bias in the social sciences, Unlocking the file drawer*. [science](#) **345** (2014), 1502–1505.

s345-1502-Supplement.pdf

We studied publication bias in the social sciences by analyzing a known population of conducted studies—221 in total—in which there is a full accounting of what is published and unpublished. We leveraged Time-sharing Experiments in the Social Sciences (TESS), a National Science Foundation–sponsored program in which researchers propose survey-based experiments to be run on representative samples of American adults. Because TESS proposals undergo rigorous peer review, the studies in the sample all exceed a substantial quality threshold. Strong results are 40 percentage points more likely to be published than are null results and 60 percentage points more likely to be written up. We provide direct evidence of publication bias and identify the stage of research production at which publication bias occurs: Authors do not write up and submit null findings.

HAGGAG 2014

Kareem Haggag & Giovanni Paci, *Default Tips*. [American Economic Journal](#) **6** (2014), iii, 1–19.

AmEconJ06.3-001-Supplement.pdf

We examine the role of defaults in high-frequency, small-scale choices using unique data on over 13 million New York City taxi rides. Using a regression discontinuity design, we show that default tip suggestions have a large impact on tip amounts. These results are supported by a secondary analysis that uses the quasi-random assignment of customers to different cars to examine default effects on a wider range of fares. Finally, we highlight a potential cost of setting defaults too high, as a higher proportion of customers opt to leave no credit card tip when presented with the higher suggested amounts.

KIM 2014

Seungsoo Kim, Tami D. Lieberman & Roy Kishony, *Alternating antibiotic treatments constrain evolutionary paths to multidrug resistance*. [PNAS](#) **111** (2014), 14494–14499.

pnas111-14494-Supplement1.xlsx, pnas111-14494-Supplement2.xlsx

Alternating antibiotic therapy, in which pairs of drugs are cycled during treatment, has been suggested as a means to inhibit the evolution of de novo resistance while avoiding the toxicity associated with more traditional combination therapy. However, it remains unclear under which conditions and by what means such alternating treatments impede the evolution of resistance. Here, we tracked multistep evolution of resistance in replicate populations of *Staphylococcus aureus* during 22 d of continuously increasing single-, mixed-, and alternating-drug treatment. In all three tested drug pairs, the alternating treatment reduced the overall rate of resistance by slowing the acquisition of resistance to one of the two component drugs, sometimes as effectively as mixed treatment. This slower rate of evolution is reflected in the genome-wide mutational profiles; under alternating treatments, bacteria acquire mutations in different genes than under corresponding single-drug treatments. To test whether this observed constraint on adaptive paths reflects trade-offs in which resistance to one drug is accompanied by sensitivity to a second drug, we profiled many single-step mutants for cross-resistance. Indeed, the average cross-resistance of single-step mutants can help predict whether or not evolution was slower in alternating drugs. Together, these results show that despite the complex evolutionary landscape of multidrug resistance, alternating-drug

therapy can slow evolution by constraining the mutational paths toward resistance.
experimental evolution | antibiotic resistance | multidrug therapy |
drug cycling | collateral sensitivity

LOVELAND 2014

Walter Loveland, *Superheavy carbonyls*. [science 345 \(2014\), 1451–1452](#).

The radioactive superheavy element seaborgium can form a carbonyl compound during its short lifetime.

Mo and W formed volatile carbonyls that adsorbed on the column in temperature regions characteristic of their known enthalpies of adsorption. A volatile Sg species adsorbed on the column at a similar position. Monte Carlo simulations of the adsorption process allowed the scientists to deduce an adsorption enthalpy of 50 ± 4 kJ/mol for the Sg species, in good agreement with the theoretical predictions (7) and similar to the measured value for W(CO)₆.

SERVICK 2014

Kelly Servick, *Outsmarting the placebo effect*. [science 345 \(2014\), 1446–1447](#).

Can a genetic test to predict a person’s level of placebo response help new drugs win approval?

If companies could identify and exclude strong placebo responders (metmet types make up roughly 25% of the population, he says), they could create smaller, more statistically powerful trials.

Yet using the COMT gene to select trial participants could raise new complications. For one, it relies on the assumption that strong placebo responders will not also be exceptional drug responders, says Luana Colloca, a clinical neuroscientist with the National Institutes of Health’s National Center for Complementary and Alternative Medicine in Bethesda, Maryland. If placebo response and drug response share common mechanisms, eliminating people most susceptible to placebos may also obscure the actual effects of the drug. Kevin Weinfurt, a psychologist at the Duke University Clinical Research Institute’s program for empirical bioethics in Durham, North Carolina, raises another problem: “You’ve created a population that doesn’t look like the population that’s going to receive the drug,” he says, “so you’re getting the wrong picture of how it will actually work out in practice.”

Amerika

LESURE 2014

Richard G. Lesure, Lana S. Martin, Katelyn J. Bishop, Brittany Jackson & C. Myles Chykerda, *The Neolithic Demographic Transition in Mesoamerica*. [Current Anthropology 55 \(2014\), 654–664](#).
CurrAnth55-654-Supplement.pdf

The Neolithic demographic transition in Mesoamerica was a gradual process that unfolded over most of the Formative period (1800 BC–AD 200). An analysis of published records of over 6,700 pre-Hispanic burials, focusing on changing proportions of juveniles 5–19 years of age, suggests that fertility rates rose steadily during both the second and the first millennia BC. The gradual pace of the demographic transition was probably related to the low initial productivity of maize.

Anthropologie

LOHSE 2014

Konrad Lohse & Laurent A. F. Frantz, *Neandertal Admixture in Eurasia Confirmed by Maximum-Likelihood Analysis of Three Genomes*. *Genetics* **196** (2014), 1241–1251.

Although there has been much interest in estimating histories of divergence and admixture from genomic data, it has proved difficult to distinguish recent admixture from long-term structure in the ancestral population. Thus, recent genome-wide analyses based on summary statistics have sparked controversy about the possibility of interbreeding between Neandertals and modern humans in Eurasia. Here we derive the probability of full mutational configurations in nonrecombining sequence blocks under both admixture and ancestral structure scenarios. Dividing the genome into short blocks gives an efficient way to compute maximumlikelihood estimates of parameters. We apply this likelihood scheme to triplets of human and Neandertal genomes and compare the relative support for a model of admixture from Neandertals into Eurasian populations after their expansion out of Africa against a history of persistent structure in their common ancestral population in Africa. Our analysis allows us to conclusively reject a model of ancestral structure in Africa and instead reveals strong support for Neandertal admixture in Eurasia at a higher rate (3.427.3%) than suggested previously. Using analysis and simulations we show that our inference is more powerful than previous summary statistics and robust to realistic levels of recombination.

Jungpaläolithikum

NIGST 2014

Philip R. Nigst et al., *Early modern human settlement of Europe north of the Alps occurred 43,500 years ago in a cold steppe-type environment*. *PNAS* **111** (2014), 14394–14399.

Philip R. Nigst, Paul Haesaerts, Freddy Damblon, Christa Frank-Fellner, Carolina Mallol, Bence Viola, Michael Götzinger, Laura Niven, Gerhard Trnka & Jean-Jacques Hublin

The first settlement of Europe by modern humans is thought to have occurred between 50,000 and 40,000 calendar years ago (cal B.P.). In Europe, modern human remains of this time period are scarce and often are not associated with archaeology or originate from old excavations with no contextual information. Hence, the behavior of the first modern humans in Europe is still unknown. Aurignacian assemblages—demonstrably made by modern humans—are commonly used as proxies for the presence of fully behaviorally and anatomically modern humans. The site of Willendorf II (Austria) is well known for its Early Upper Paleolithic horizons, which are among the oldest in Europe. However, their age and attribution to the Aurignacian remain an issue of debate. Here, we show that archaeological horizon 3 (AH 3) consists of faunal remains and Early Aurignacian lithic artifacts. By using stratigraphic, paleoenvironmental, and chronological data, AH 3 is ascribed to the onset of Greenland Interstadial 11, around 43,500 cal B.P., and thus is older than any other Aurignacian assemblage. Furthermore, the AH 3 assemblage overlaps with the latest directly radiocarbon-dated Neanderthal remains, suggesting that Neanderthal and modern human presence overlapped in Europe for some millennia, possibly at rather close geographical range. Most importantly, for the first time to our knowledge, we have a high-resolution environmental context

for an Early Aurignacian site in Central Europe, demonstrating an early appearance of behaviorally modern humans in a medium-cold steppe-type environment with some boreal trees along valleys around 43,500 cal B.P.

Klima

BLACK 2014

Bryan A. Black et al., *Six centuries of variability and extremes in a coupled marine-terrestrial ecosystem*. [science](#) **345** (2014), 1498–1502. [s345-1498-Supplement.pdf](#)

Bryan A. Black, William J. Sydeman, David C. Frank, Daniel Griffin, David W. Stahle, Marisol García-Reyes, Ryan R. Rykaczewski, Steven J. Bograd & William T. Peterson

Reported trends in the mean and variability of coastal upwelling in eastern boundary currents have raised concerns about the future of these highly productive and biodiverse marine ecosystems. However, the instrumental records on which these estimates are based are insufficiently long to determine whether such trends exceed preindustrial limits. In the California Current, a 576-year reconstruction of climate variables associated with winter upwelling indicates that variability increased over the latter 20th century to levels equaled only twice during the past 600 years. This modern trend in variance may be unique, because it appears to be driven by an unprecedented succession of extreme, downwelling-favorable, winter climate conditions that profoundly reduce productivity for marine predators of commercial and conservation interest.

COOK 2014

Benjamin I. Cook, Jason E. Smerdon, Richard Seager & Edward R. Cook, *Pan-Continental Droughts in North America over the Last Millennium*. [Journal of Climate](#) **27** (2014), 383–397.

Regional droughts are common in North America, but pan-continental droughts extending across multiple regions, including the 2012 event, are rare relative to single-region events. Here, the tree-ring-derived North American Drought Atlas is used to investigate drought variability in four regions over the last millennium, focusing on pan-continental droughts. During the Medieval Climate Anomaly (MCA), the central plains (CP), Southwest (SW), and Southeast (SE) regions experienced drier conditions and increased occurrence of droughts and the Northwest (NW) experienced several extended pluvials. Enhanced MCA aridity in the SW and CP manifested as multidecadal megadroughts. Notably, megadroughts in these regions differed in their timing and persistence, suggesting that they represent regional events influenced by local dynamics rather than a unified, continental-scale phenomena. There is no trend in pan-continental drought occurrence, defined as synchronous droughts in three or more regions. SW, CP, and SE (SW1CP1SE) droughts are the most common, occurring in 12% of all years and peaking in prevalence during the twelfth and thirteenth centuries; patterns involving three other regions occur in about 8% of years. Positive values of the Southern Oscillation index (La Niña conditions) are linked to SW, CP, and SE (SW1CP1SE) droughts and SW, CP, and NW (SW1CP1NW) droughts, whereas CP, NW, and SE (CP1NW1SE) droughts are associated with positive values of the Pacific decadal oscillation and Atlantic multidecadal oscillation. While relatively rare, pancontinental droughts are present in the paleo record and are linked to defined modes of climate variability, implying the potential for seasonal predictability. Assuming stable drought teleconnections, these events will remain an

important feature of future North American hydroclimate, possibly increasing in their severity in step with other expected hydroclimate responses to increased greenhouse gas forcing.

YEAKEL 2014

Justin D. Yeakel et al., *Collapse of an ecological network in Ancient Egypt*. [PNAS 111 \(2014\), 14472–14477](#).

Justin D. Yeakel, Mathias M. Pires, Lars Rudolf, Nathaniel J. Dominy, Paul L. Koch, Paulo R. Guimarães, Jr. & Thilo Gross

The dynamics of ecosystem collapse are fundamental to determining how and why biological communities change through time, as well as the potential effects of extinctions on ecosystems. Here, we integrate depictions of mammals from Egyptian antiquity with direct lines of paleontological and archeological evidence to infer local extinctions and community dynamics over a 6,000-y span. The unprecedented temporal resolution of this dataset enables examination of how the tandem effects of human population growth and climate change can disrupt mammalian communities. We show that the extinctions of mammals in Egypt were nonrandom and that destabilizing changes in community composition coincided with abrupt aridification events and the attendant collapses of some complex societies. We also show that the roles of species in a community can change over time and that persistence is predicted by measures of species sensitivity, a function of local dynamic stability. To our knowledge, our study is the first high-resolution analysis of the ecological impacts of environmental change on predator–prey networks over millennial timescales and sheds light on the historical events that have shaped modern animal communities.

community stability | historical ecology | trophic interactions | dynamic sensitivity | redundancy

Kultur

ELLSWORTH 2014

Ryan M. Ellsworth, Drew H. Bailey, Kim R. Hill, A. Magdalena Hurtado & Robert S. Walker, *Relatedness, Co-residence, and Shared Fatherhood among Ache Foragers of Paraguay*. [Current Anthropology 55 \(2014\), 647–653](#).

Hypotheses on the benefits of the practice of partible paternity are tested using demographic data for Ache foragers of Paraguay. Partible paternity refers to the institution of multiple males considered to contribute to the conception of a single offspring. Analyses focus on patterns of primary and secondary co-fatherhood among men, genealogical relationships between co-fathers, and relation between band co-residence and co-fatherhood. Results indicate that men who had more secondary fatherhood also had more primary fatherhood; co-fathers are more closely related, on average, than men who are not co-fathers; and co-fathers were also more likely to reside together than men who were not co-fathers, even after controlling for relatedness. Results are most consistent with women choosing co-fathers of offspring in ways that maximize likelihood and amount of investment (multiple investors hypothesis) and men competing for more mates with at least partially affiliative outcomes (mate competition and male alliance hypotheses).

[W]ithin our species, levels of investment vary according to a number of factors. In particular, there is evidence from numerous cultures that paternal investment is contingent upon paternity certainty. To this end, men place a premium on sexual

fidelity of long-term mates and employ a variety of mechanisms to ensure their investment is directed at genetic descendants. Shared paternity implies polyandrous mating and thus is puzzling in light of the aforementioned traits of human males. Recent research has demonstrated that polyandrous arrangements are more common cross-culturally than previously thought.

MORELL 2014

Virginia Morell, *No miracles*. [science 345 \(2014\), 1443–1445](#).

Biologist Russell Gray uses evolutionary ideas to probe the origin of languages and complex thinking.

At the Max Planck, Gray won't be exploring only linguistics. His mandate extends to culture, and he's already enthusing over the prospect of applying phylogenetic methods to questions such as what societal factors lead to belief in an omnipresent deity or how large states develop from small tribal bands. "Cultural anthropologists think there aren't any rules for how political structures or religions come about," Gray says. "But to me, these are empirical questions. We don't have to just wave our arms. There are no miracles."

SCOTT 2014

Isabel M. Scott et al., *Human preferences for sexually dimorphic faces may be evolutionarily novel*. [PNAS 111 \(2014\), 14388–14393](#).

Isabel M. Scott, Andrew P. Clark, Steven C. Josephson, Adam H. Boyette, Innes C. Cuthill, Ruby L. Fried, Mhairi A. Gibson, Barry S. Hewlett, Mark Jamieson, William Jankowiak, P. Lynne Honey, Zejun Huang, Melissa A. Liebert, Benjamin G. Purzycki, John H. Shaver, J. Josh Snodgrass, Richard Sosis, Lawrence S. Sugiyama, Viren Swami, Douglas W. Yu, Yangke Zhao & Ian S. Penton-Voak

A large literature proposes that preferences for exaggerated sex typicality in human faces (masculinity/femininity) reflect a long evolutionary history of sexual and social selection. This proposal implies that dimorphism was important to judgments of attractiveness and personality in ancestral environments. It is difficult to evaluate, however, because most available data come from large-scale, industrialized, urban populations. Here, we report the results for 12 populations with very diverse levels of economic development. Surprisingly, preferences for exaggerated sex-specific traits are only found in the novel, highly developed environments. Similarly, perceptions that masculine males look aggressive increase strongly with development and, specifically, urbanization. These data challenge the hypothesis that facial dimorphism was an important ancestral signal of heritable mate value. One possibility is that highly developed environments provide novel opportunities to discern relationships between facial traits and behavior by exposing individuals to large numbers of unfamiliar faces, revealing patterns too subtle to detect with smaller samples.

facial attractiveness | evolution | cross-cultural | aggression | stereotyping

YAMIN-PASTERNAK 2014

Sveta Yamin-Pasternak, Andrew Kliskey, Lilian Alessa, Igor Pasternak & Peter Schweitzer, *The Rotten Renaissance in the Bering Strait, Loving, Loathing, and Washing the Smell of Foods with a (Re)acquired Taste*. [Current Anthropology 55 \(2014\), 619–646](#).

Situated in the Bering Strait region of Russia and Alaska, the ethnographic documentation presented here elucidates the role of the olfactory aesthetic in shaping human attitudes toward food. The focus is on the practices connected with the use of marine mammal products and recipes prepared by means of aging

and fermentation. Since recent times, the olfactory responses to these historically important foods have been changing to where their smell is becoming undesirable on the whole and particularly unacceptable in certain social contexts. The present attitudes range from genuine fondness to an array of aversions. For many contemporary consumers, the social implications of the smells associated with consumption of aged foods and marine mammal products pose a daily concern, which they address in part through extensive washing and laundering. The featured ethnohistorical reconstruction captures the story of Soviet-era near annihilation of certain products and recipes in Chukotka, followed by a partial revitalization in the post-Soviet period. Examples of the gustatory, olfactory, and social experiences connected with food on both sides of the Bering Strait are offered. Cumulatively, these experiences speak of the extent to which foodways and food security are shaped by the realm of senses.

Mesolithikum

YESHURUN 2014

Reuven Yeshurun, Guy Bar-Oz, Daniel Kaufman & Mina Weinstein-Evron, *Purpose, Permanence, and Perception of 14,000-Year-Old Architecture, Contextual Taphonomy of Food Refuse*. [Current Anthropology 55 \(2014\), 591–618](#).

[CurrAnth55-591-Supplement.pdf](#)

Remains of early architecture at the Epipaleolithic-Neolithic transition of the Near East are commonly evaluated by means of two criteria: structure size and permanent interior features or decorations. Less attention has been given to associated refuse, which could be the key for discerning the role of architectural space in the lives and minds of the last hunter-gatherers. We consider this dimension by modeling the deposition of animal remains in an Early Natufian (ca. 14,000 cal BP) architectural complex at the el-Wad Terrace (Mount Carmel, Israel). Contextual taphonomy shows that a sequence of structures was used for everyday living activities, including food preparation and consumption—probably at the household level—as well as bone working. Despite the relatively permanent habitation, reflected by repeatedly renovated stone architecture, a broad-spectrum economy, and the infliction of heavy habitation damage to in situ refuse, the inhabitants did not systematically engage in the clearing away of organic trash or otherwise marking out their domicile. The perception of the house was probably still “Paleolithic” and functional in character, highlighting the complex mosaic of old and new traits in the preagricultural communities of the Levant.

Mittelpaläolithikum

GALVÁN 2014

Bertila Galván, Cristo M. Hernández, Carolina Mallol, Norbert Mercier, Ainara Sistiaga & Vicente Soler, *New evidence of early Neanderthal disappearance in the Iberian Peninsula*. [Journal of Human Evolution 75 \(2014\), 16–27](#).

The timing of the end of the Middle Palaeolithic and the disappearance of Neanderthals continue to be strongly debated. Current chronometric evidence from different European sites pushes the end of the Middle Palaeolithic throughout the continent back to around 42 thousand years ago (ka). This has called into

question some of the dates from the Iberian Peninsula, previously considered as one of the last refuge zones of the Neanderthals. Evidence of Neanderthal occupation in Iberia after 42 ka is now very scarce and open to debate on chronological and technological grounds. Here we report thermoluminescence (TL) and optically stimulated luminescence (OSL) dates from El Salt, a Middle Palaeolithic site in Alicante, Spain, the archaeological sequence of which shows a transition from recurrent to sporadic human occupation culminating in the abandonment of the site. The new dates place this sequence within MIS 3, between ca. 60 and 45 ka. An abrupt sedimentary change towards the top of the sequence suggests a strong aridification episode coinciding with the last Neanderthal occupation of the site. These results are in agreement with current chronometric data from other sites in the Iberian Peninsula and point towards possible breakdown and disappearance of the Neanderthal local population around the time of the Heinrich 5 event. Iberian sites with recent dates (<40 ka) attributed to the Middle Palaeolithic should be revised in the light of these data.

Keywords: Middle Palaeolithic | TL dating | OSL dating | Geoarchaeology | El Salt | Spain

GARRALDA 2014

María Dolores Garralda, Bertila Galván, Cristo M. Hernández, Carolina Mallol, José A. Gómez & Bruno Maureille, *Neanderthals from El Salt (Alcoy, Spain) in the context of the latest Middle Palaeolithic populations from the southeast of the Iberian Peninsula*. [Journal of Human Evolution](#) **75** (2014), 1–15.

We present a bioanthropological study of dental remains recovered from El Salt Middle Palaeolithic site (Alcoy, Alicante, Spain). The dental remains were found in a sedimentary layer representing a calm depositional environment within a freshwater spring system. The corresponding archaeological context comprises a Middle Palaeolithic faunal and lithic assemblage that represents the last documented evidence of human occupation at the site, dating to between 47.2 ± 4.4 and 45.2 ± 3.4 ka (thousands of years ago). This evidence is overlain by an archaeologically sterile deposit dated to 44.7 ± 3.2 ka. Results show that the teeth belong to a single juvenile or young adult individual with morphological and metric features falling within the Neanderthal range of variability, although the considered traits are not taxonomically highly discriminant. The reported fossils are representative of the latest Middle Palaeolithic groups in the region and may be considered in the ongoing debate on the disappearance of Neanderthals and the end of the Middle Palaeolithic.

Keywords: Pleistocene | Taurodontism | Anatomically modern humans | Teeth | Western Europe

SCERRI 2014

Eleanor M. L. Scerri, Huw S. Groucutt, Richard P. Jennings & Michael D. Petraglia, *Unexpected technological heterogeneity in northern Arabia indicates complex Late Pleistocene demography at the gateway to Asia*. [Journal of Human Evolution](#) **75** (2014), 125–142.

The role and significance of the Arabian Peninsula in modern human dispersals out of Africa is currently contentious. While qualitative observations of similarities between Arabian Middle Palaeolithic and African Middle Stone Age (MSA) assemblages have been made, these inferences remain untested and often situated within overly broad dichotomies (e.g., ‘Africa’ versus the ‘Levant’), which

distort concepts of geographic scale and subsume local variability. Here, we quantitatively test the hypothesis that assemblages from Jubbah, in the Nefud Desert of northern Saudi Arabia are similar to MSA industries from northeast Africa. Based on the quantitative analysis of a suite of metric and morphological data describing lithic reduction sequences, our results show that early and late core reduction at Jubbah is distinct from equivalent northeast African strategies, perhaps as a result of raw material factors. However, specific techniques of core shaping, preparation and preferential flake production at Jubbah draw from a number of methods also present in the northeast African MSA. While two Jubbah lithic assemblages (JKF-1 and JKF-12) display both similarities and differences with the northeast African assemblages, a third locality (JSM-1) was significantly different to both the other Arabian and African assemblages, indicating an unexpected diversity of assemblages in the Jubbah basin during Marine Isotope Stage 5 (MIS 5, $\approx 125\text{--}70,000$ years ago, or ka). Along with evidence from southern Arabia and the Levant, our results add quantitative support to arguments that MIS 5 hominin demography at the interface between Africa and Asia was complex.

Keywords: Middle Palaeolithic | Lithic technology | Middle Stone Age | Out of Africa

WILSON 2014

Lucy Wilson & Constance L. Browne, *Change in raw material selection and subsistence behaviour through time at a Middle Palaeolithic site in southern France*. [Journal of Human Evolution](#) **75** (2014), 28–39.

We apply a resource selection model to the lithic assemblages from 11 archaeological layers at a Middle Palaeolithic site in southern France, the Bau de l'Aubesier. The model calculates how to weight each of 10 variables in order to best match the proportions of raw materials from various potential sources in the lithic assemblages. We then combine the variables into two sets of five each, those related to the characteristics of the raw materials themselves, and those related to the sources and the terrain around them. Running the model with each subset shows that the terrain variables always provide a better match to raw material use than do the raw material variables taken by themselves, but the best model is always the overall (10-variable) model. This means that terrain is most important in every case, but raw material properties also matter. Comparing the percentage contributions of each subset within the overall model, however, shows a clear change in emphasis in the upper layers versus the lower layers of the site. In the lower six layers, the percent contribution of the terrain variables is always greater than that of the raw material variables, but in the upper five layers the reverse is true: terrain still matters, but raw material becomes more important. We also look at faunal and basic tool typological data, which show a progressive change through time, as smaller prey become more important (and large prey less so), and tools and cores proportionally less abundant in the assemblages in the upper layers. We suggest that these results reflect a change in subsistence strategies at the time of a particularly harsh climate near the end of the Middle Pleistocene, and that hominin groups using this site continued to use this new approach throughout the rest of the Pleistocene.

Keywords: Lithic raw materials | Neandertal | Prey size | Procurement strategies | Resource selection