

Literatur

Aktuell

MASTRULLO 2014

R. Mastrullo, A. W. Mauro, L. Menna, A. Palma & G. P. Vanoli, *Transient model of a vertical freezer with door openings and defrost effects*. [Applied Energy](#) **121** (2014), 38–50.

Cabinet temperature evolution and energy consumption are two parameters of primary importance for food/medical preservation and energy savings in cold appliances. In this paper, a transient model of a vertical freezer is developed to study the trend of cabinet temperature and of energy consumption with time, taking also into account door openings, air leakage, frost formation and defrost effect. The model is validated with the experimental data, both with in-house data and with data available in the open literature for frost formation. The results are presented with varying operating conditions, such as air temperature, air humidity, frequency of door opening and defrosting. A qualitative comparison of the trends of air temperature inside the cabinet and of power consumption showed a good agreement between the experimental and simulated profiles; a good agreement was also found in the statistical analysis of errors, with maximum absolute errors on the time averaged temperature of air inside the cabinet of the order of 4 K and maximum relative error on the time averaged power consumption of the order of 4%. Sensitivity analyses are reported as examples to exploit the potential of the model as a tool for design of systems, for settings for defrost parameters and for preventing fault events for food/medical preservation.

Keywords: Freezer | Temperature | Control | Frost | Defrost | Energy saving

RIEHL 2014

Simone Riehl, *Der lange Weg zur Landwirtschaft*. [Spektrum der Wissenschaft](#) **2014**, iv, 64–68.

Planzen zu züchten, galt Forschern lange als Technologiesprung. Sie erachteten die neolithische Lebensweise als Revolution, die von einem einzigen Ursprungsort ausging. Jetzt mehren sich die Hinweise, dass es in Wirklichkeit anders war.

Ab den 1980er Jahren brachte vor allem Ian Hodder von der Stanford University kulturelle Bedürfnisse als Auslöser ökonomischer Entscheidungen ins Spiel, wie etwa Veränderungen im rituellen und sozialen Miteinander, die Modifikationen bei Arbeitsteilung und Arbeitsabläufen zur Folge hatten. In jüngster Zeit bereichert die Kognitionspsychologie das Spektrum der Erklärungen. So geht Trevor Watkins, Emeritus der University of Edinburgh, davon aus, dass das menschliche Sozialverhalten erst vor etwa 12 000 Jahren ein Niveau erreichte, das Interaktionen möglich machte, wie die Landwirtschaft sie erfordert – auch die Fähigkeit, dauerhaft mit einer Vielzahl von Menschen an einem Ort zusammenzuleben. Mag die Logik dieser Argumentation bestehen, so sind hier eindeutige archäologische Beweise kaum zu finden.

TONG 2014

David Tong, *Machen Quanten Sprünge?* [Spektrum der Wissenschaft](#) **2014**, iv, 58–61.

Die Quantentheorie scheint zu besagen, dass sich die Natur auf der kleinsten Ebene sprunghaft verhält. Doch bei genauerer Betrachtung gelten auch im Mikrokosmos stets kontinuierliche Gesetze: Die Welt funktioniert im Grunde nicht digital, sondern analog!

Anthropologie

OLALDE 2014

Iñigo Olalde et al., *Derived immune and ancestral pigmentation alleles in a 7,000-year-old Mesolithic European*. [nature 507 \(2014\), 225–228](#).
[n507-0225-Supplement.pdf](#)

Iñigo Olalde, Morten E. Allentoft, Federico Sánchez-Quinto, Gabriel Santpere, Charleston W. K. Chiang, Michael DeGiorgio, Javier Prado-Martinez, Juan Antonio Rodríguez, Simon Rasmussen, Javier Quilez, Oscar Ramírez, Urko M. Marigorta, Marcos Fernández-Callejo, María Encina Prada, Julio Manuel Vidal Encinas, Rasmus Nielsen, Mihai G. Netea, John Novembre, Richard A. Sturm, Pardis Sabeti, Tomàs Marquès-Bonet, Arcadi Navarro, Eske Willerslev & Carles Lalueza-Fox

Ancient genomic sequences have started to reveal the origin and the demographic impact of farmers from the Neolithic period spreading into Europe^{1–3}. The adoption of farming, stock breeding and sedentary societies during the Neolithic may have resulted in adaptive changes in genes associated with immunity and diet⁴. However, the limited data available from earlier hunter-gatherers preclude an understanding of the selective processes associated with this crucial transition to agriculture in recent human evolution. Here we sequence an approximately 7,000-year-old Mesolithic skeleton discovered at the La Braña-Arintero site in León, Spain, to retrieve a complete pre-agricultural European human genome. Analysis of this genome in the context of other ancient samples suggests the existence of a common ancient genomic signature across western and central Eurasia from the Upper Paleolithic to the Mesolithic. The La Braña individual carries ancestral alleles in several skin pigmentation genes, suggesting that the light skin of modern Europeans was not yet ubiquitous in Mesolithic times. Moreover, we provide evidence that a significant number of derived, putatively adaptive variants associated with pathogen resistance in modern Europeans were already present in this hunter-gatherer.

Bibel

FAUST 2011

Avraham Faust & Justin Lev-Tov, *The Constitution of Philistine Identity, Ethnic dynamics in twelfth to tenth century Philistia*. [Oxford Journal of Archaeology 30 \(2011\), 13–31](#).

The process and date of the Philistine settlement in Canaan have received a great deal of scholarly attention. As well, scholars have also devoted much attention to the expansion of Philistine interaction with Levantine societies prior to the Philistines' assimilation in the late Iron Age. While most studies view Philistine integration and acculturation as a gradual process, a close examination of the detailed faunal and ceramic evidence suggests otherwise. It appears that due to various processes of boundary maintenance, the Philistines maintained high ethnic boundaries with their neighbours for at least 150–200 years, before (quite suddenly) losing most of their unique traits in the tenth century BC.

LEVIN 2007

Yigal Levin, *The Southern Frontier of Yehud and the Creation of Idumea*. In: YIGAL LEVIN (Hrsg.), *A Time of Change, Judah and its Neighbours in the Persian and Early Hellenistic Period*. Library of Second Temple studies 65 (London 2007), 239–252.

However, it is also fairly well established that by the mid-fifth century BCE, the southern boundary of the province of Yehud had shifted considerably northward. Assuming, as do most scholars,²¹ that ‘the list of the wall-builders’ in Nehemiah 3 is, in fact, authentic and does indeed reflect the extent of the province during the governorship of Nehemiah (445–433 BCE), the southernmost towns mentioned are Beth-zur, Keilah and Tekoa. This would seem to reflect a Judahite ‘withdrawal’ from the Negeb and the southern Shephelah and hill-country, including towns as far north as Hebron and Mareshah, the later Marisa. [...]

Was there, however, an autonomous province of Idumea during the Persian period? As we have seen, there was certainly not one during the late sixth and fifth centuries. [...] The only reasonable conclusion is that despite the demographic and economic changes in the area, the Persians saw no reason to change its administrative status.

All that changed, however, in 333 BCE, when Alexander, coming down the coast towards Egypt, demanded the surrender of Gaza. [...] way (ibid. 94). Ashkelon, having been spared by Alexander, was burned to the ground around 300 BCE, apparently by Ptolemy.⁶⁵ Following this, Antigonos mounted an expedition to the land of the ‘Arabs who are called Nabataeans’. These, according to Diodorus (xix 94–95), were traders in spices who brought them down to the sea shore to sell. The new rulers of the area made several changes in its administration. Since the Qedarites had disappeared from the area, the southern hills and the Shephelah were now organized as an ‘eparchy’ or ‘hyparchy’ (different sources use different terms). As recognized by Eph’al, the new district was now named after its main inhabitants.⁶⁶ In 312, Antigonos’ general Athenaeus set out ‘from the eparchy of Idumea’ on his failed campaign against the Nabateans (Diodorus xix 95). The new order was in place: the Qedarites had been replaced by the Nabateans, and the province of Idumea had been born.

Datierung

CADOGAN 1987

Gerald Cadogan, *Unsteady date of a big bang*. *nature* **328** (1987), 473.

CHERUBINI 2014

Paolo Cherubini et al., *Bronze Age catastrophe and modern controversy, Dating the Santorini eruption*. *Antiquity* **88** (2014), 267–291.

The date of the volcanic eruption of Santorini that caused extensive damage to Minoan Crete has been controversial since the 1980s. Some have placed the event in the late seventeenth century BC. Others have made the case for a younger date of around 1500 BC. A recent contribution to that controversy has been the dating of an olive tree branch preserved within the volcanic ash fall on Santorini. In this debate feature Paolo Cherubini and colleagues argue that the olive tree dating (which supports the older chronology) is unreliable on a number of grounds. There follows a response from the authors of that dating, and comments from other specialists, with a closing reply from Cherubini and his team.

Keywords: Santorini, Thera, Minoan eruption, radiocarbon dating, tree-rings
The olive-branch dating of the Santorini eruption

Paolo Cherubini, Turi Humbel, Hans Beeckman, Holger Gärtner, David Mannes, Charlotte Pearson, Werner Schoch, Roberto Tognetti & Simcha Lev-Yadun
The olive branch chronology stands irrespective of tree-ring counting
Walter L. Friedrich, Bernd Kromer, Michael Friedrich, Jan Heinemeier, Tom Pfeiffer & Sahra Talamo
Radiocarbon and the date of the Thera eruption
Manfred Bietak
The Thera olive branch, Akrotiri (Thera) and Palaikastro (Crete): comparing radiocarbon results of the Santorini eruption
Hendrik J. Bruins & Johannes van der Plicht
The difficulties of dating olive wood
Peter Ian Kuniholm
A disastrous date
J. Alexander MacGillivray
The olive tree-ring problematic dating
Paolo Cherubini & Simcha Lev-Yadun

Energie

IRIMESCU 2014

Adrian Irimescu, Gabriel VasIU, Gavrilă Trif Tordai, *Performance and emissions of a small scale generator powered by a spark ignition engine with adaptive fuel injection control*. [Applied Energy 121 \(2014\), 196–206](#).

Distributed generation of electricity is more and more viewed as a solution for reducing transmission losses and provide better catering for the needs of end users. Small-scale generation is therefore likely to increase its share in the energy sector, as it ensures high degree of flexibility, quick start-up and good performance in combination with intermittent power sources such as solar or wind. One drawback of small scale generators driven by internal combustion engines is, however, low fuel conversion efficiency and high specific emissions compared to medium or high scale power units. A new control strategy for fuel injection and emissions reduction is proposed to mitigate both aspects, while ensuring flexibility in the choice of fuels for a spark ignition engine powered generator. Performance and emissions are compared for carburetor and fuel injection combined with the use of a three way catalytic converter, with the latter solution proving to be more efficient and environmentally friendly. Significant improvements in fuel conversion efficiency and reductions of carbon monoxide and unburned hydrocarbons emissions were obtained by employing the proposed setup and control strategy. Flexibility in the use of different fuel types was evaluated by performing measurements with gasoline, iso-butanol and combined use of alcohol and natural gas. Financial aspects are also covered through a brief analysis of initial capital costs and payback time in order to offer a more detailed view of both fuel systems.

Keywords: Distributed generation | Spark ignition engines | Alternative fuels | Iso-butanol | Natural gas | Regulated emissions

MASUM 2013

B. M. Masum, H. H. Masjuki, M. A. Kalam, I. M. Rizwanul Fattah, S. M. Palash, M. J. Abedin, *Effect of ethanol–gasoline blend on NO_x emission in SI engine*. [Renewable and Sustainable Energy Reviews 24 \(2013\), 209–222](#).

The stricter worldwide emission legislation and growing demands for lower fuel consumption and anthropogenic CO₂ emission require significant efforts to improve combustion efficiency while satisfying the emission quality demands. Ethanol fuel combined with gasoline provides a particularly promising and, at the same time, a challenging approach. Ethanol is widely used as an alternative fuel or an effective additive of gasoline due to the advantage of its high octane number and its self-sustaining concept, which can be supplied regardless of the fossil fuel. As a result, vast study has been carried out to study its effects on engine performance and emission.

The first part of this article discusses prospect of fuel ethanol as a gasoline substitute. Then it discusses comparative physicochemical properties of ethanol and gasoline. The slight differences in properties between ethanol and gasoline fuels are enough to create considerable change to combustion system as well as behaviors of SI engines. These effects lead to several complex and interacting mechanisms, which make it difficult to identify the fundamentals of how ethanol affects NO_x emission. After that, general NO_x forming mechanisms are discussed to create a fundamental basis for further discussion. Finally, the article discusses different fuel composition, engine parameter and engine modification effects on NO_x formation as well as mathematical approach for NO_x prediction using ethanol.

Keywords: Ethanol | Nitrogen oxide | SI engine | Renewable energy | Emission

Grundlagen

FERNÁNDEZ-GÖTZ 2013

Manuel Fernández-Götz & Dirk Krausse, *Rethinking Early Iron Age urbanisation in Central Europe, The Heuneburg site and its archaeological environment*. *Antiquity* **87** (2013), 473–487.

The Heuneburg on the Upper Danube has been one of the best-known archaeological sites of Early Iron Age Europe since the first excavations of the 1950s. Fieldwork carried out during recent years, however, has radically changed our accepted understanding of what was clearly a central place of supra-regional importance. In addition to the three-hectare hilltop fortification with its famous mudbrick wall, an outer settlement some 100ha in extent has been discovered. Its investigation has given new insights into the centralisation process that took place from the end of the seventh century BC. Moreover, recent discoveries from the richly furnished burials in the surrounding area offer significant clues to issues of social hierarchy and status transmission within Late Hallstatt communities. The results provide an entirely new picture of the earliest stages of urbanisation north of the Alps.

Keywords: Central Europe, the Heuneburg, Early Iron Age, centralisation, urbanisation

Isotope

BOCHERENS 2014

Hervé Bocherens, Dorothee G. Drucker & Stéphane Madelaine, *Evidence for a ¹⁵N positive excursion in terrestrial foodwebs at the Middle to Upper Palaeolithic transition in south-western France: Implications for early modern human palaeodiet and palaeoenvironment*. *Journal of Human Evolution* (2014), preprint, 1–13. DOI:10.1016/j.jhevol.2013.12.015.

The Middle to Upper Palaeolithic transition around 35,000 years ago coincides with the replacement of Neanderthals by anatomically modern humans in Europe. Several hypotheses have been suggested to explain this replacement, one of them being the ability of anatomically modern humans to broaden their dietary spectrum beyond the large ungulate prey that Neanderthals consumed exclusively. This scenario is notably based on higher nitrogen-15 amounts in early Upper Palaeolithic anatomically modern human bone collagen compared with late Neanderthals. In this paper, we document a clear increase of nitrogen15 in bone collagen of terrestrial herbivores during the early Aurignacian associated with anatomically modern humans compared with the stratigraphically older Châtelperronian and late Mousterian fauna associated with Neanderthals. Carnivores such as wolves also exhibit a significant increase in nitrogen15, which is similar to that documented for early anatomically modern humans compared with Neanderthals in Europe. A shift in nitrogen-15 at the base of the terrestrial foodweb is responsible for such a pattern, with a preserved foodweb structure before and after the Middle to Upper Palaeolithic transition in south-western France. Such an isotopic shift in the terrestrial ecosystem may be due to an increase in aridity during the time of deposition of the early Aurignacian layers. If it occurred across Europe, such a shift in nitrogen-15 in terrestrial foodwebs would be enough to explain the observed isotopic trend between late Neanderthals and early anatomically modern humans, without any significant change in the diet composition at the Middle to Upper Palaeolithic transition.

Keywords: Early Aurignacian | Collagen | Stable isotopes | Western Europe

Kultur

DÍAZ-ANDREU 2014

Margarita Díaz-Andreu, Carlos García Benito & María Lazarich, *The Sound of Rock Art. The acoustics of the rock art of southern Andalusia (Spain)*. [Oxford Journal of Archaeology](#) **33** (2014), 1–18.

This paper explores the potential of acoustics to interpret the prehistoric rock art of southern Andalusia (Spain). Tests undertaken in two areas, north of the Celemín river and the Bacinete area, will form the basis of our discussion. The results obtained at a selection of rock art sites show that the two key rock art sites, El Tajo de las Figuras and the large shelter at Bacinete, both with the majority of paintings in the earlier Laguna de la Janda style, had good resonance values. In contrast, at most of the other minor sites tested, the values for resonance were negative or insignificant, regardless of whether they were painted in Laguna de la Janda or schematic style. We conclude that the major rock art sites in southern Andalusia were chosen not only for their geological appearance and location in the landscape, but also for their acoustic properties.

KUHN 2007

Steven L. Kuhn & Mary C. Stiner, *Paleolithic Ornaments, Implications for Cognition, Demography and Identity*. [Diogenes](#) **54** (2007), ii, 40–48.

If we are correct in thinking that beads and other forms of body ornamentation represent a new way of communicating, then it follows humans must already have been using symbols to communicate when ornaments first appeared in Paleolithic sites. There is no doubt that this sort of communication was underwritten by evolutionary developments in cognition, particularly in the ability to manipulate

symbols. However, the archaeological ‘moment’ when new technologies for communication first appeared surely followed evolutionary changes in neuro-anatomy and basic cognitive capacities, though by how long we cannot say. Rather than the appearance of novel cognitive abilities, the integration of beads and other ornaments into the material cultures of both sub-Saharan Africa and Eurasia reflects changing social and demographic conditions. Increasing populations associated with the origins and dispersal of anatomically modern *Homo sapiens* changed the social landscape, putting nearly everyone in more frequent contact with strangers.

RIVERO 2014

Olivia Rivero & Georges Sauvet, *Defining Magdalenian cultural groups in Franco-Cantabria by the formal analysis of portable artworks*. *Antiquity* **88** (2014), 64–80.

Antiquity088-0064-Supplement1.xlsx, Antiquity088-0064-Supplement1.xls, Antiquity088-0064-Supplement1.ods, Antiquity088-0064-Supplement1.csv, Antiquity088-0064-Supplement2.pdf

The motifs, techniques and stylistic features of Upper Palaeolithic art offer enormous potential for the investigation of social and cultural interactions in southwestern France and northern Spain during the later stages of the last ice age. The key regions of Aquitaine, Cantabria and the Pyrenees clearly share an overall family resemblance, but detailed analysis of horse heads on portable objects of bone, antler and stone from Magdalenian contexts reveal that particular features can be attributed to different regions at different periods. Furthermore, the patterns of interconnection are structured very differently in the Upper Magdalenian than in the Middle Magdalenian, perhaps as rising temperatures in the latter period led to territorial expansion and social realignment.

Keywords: France, Spain, Upper Palaeolithic, Magdalenian, mobiliary art, cave art, stylistic analysis, correspondence factor analysis, ascending hierarchical clustering

WRIGHT 2014

Duncan Wright, Ladislav Nejman, Francesco d’Errico, Miroslav Králík, Rachel Wood, Martin Ivanov & Šárka Hladilová, *An Early Upper Palaeolithic decorated bone tubular rod from Pod Hradem Cave, Czech Republic*. *Antiquity* **88** (2014), 30–46.

Antiquity088-0030-Supplement1.pdf, Antiquity088-0030-Supplement2.flv

Personal ornaments are a notable feature of the Early Upper Palaeolithic in Europe and an important expression of modern human identity. The tubular bone rod from Pod Hradem Cave in the Czech Republic is the first example of its kind from Central Europe. Laboratory examination reveals the techniques used in its manufacture and underlines the skill of its maker. AMS dates and Bayesian modelling suggest a cultural association with the Early Aurignacian period. It illustrates the cultural links across large areas of Europe at this time, although it is unique in its specific combination of size, raw material and decorative features.

Keywords: Czech Republic, Pod Hradem, Middle–Upper Palaeolithic transition, personal ornament, bone technology, craft specialisation, portable art

Mathematik

BOWER 2014

Richard G. Bower et al., *A Medieval Multiverse, Mathematical Modelling of the 13th Century Universe of Robert Grosseteste*. *arXiv* (2014),

1403.0769. <http://arxiv.org/pdf/1403.0769>.

Richard G. Bower, Tom C. B. McLeish F. R. S., Brian K. Tanner, Hannah E. Smithson, Cecilia Panti, Neil Lewis & Giles E. M. Gasper

In his treatise on light, written in about 1225, Robert Grosseteste describes a cosmological model in which the Universe is created in a big-bang like explosion and subsequent condensation. He postulates that the fundamental coupling of light and matter gives rise to the material body of the entire cosmos. Expansion is arrested when matter reaches a minimum density and subsequent emission of light from the outer region leads to compression and rarefaction of the inner bodily mass so as to create nine celestial spheres, with an imperfect residual core. In this paper we reformulate the Latin description in terms of a modern mathematical model. The equations which describe the coupling of light and matter are solved numerically, subject to initial conditions and critical criteria consistent with the text. Formation of a universe with a non-infinite number of perfected spheres is extremely sensitive to the initial conditions, the intensity of the light and the transparency of these spheres. In this “medieval multiverse”, only a small range of opacity and initial density profiles lead to a stable universe with nine perfected spheres. As in current cosmological thinking, the existence of Grosseteste’s universe relies on a very special combination of fundamental parameters.

Keywords: Cosmology | history of science | multiverse | mathematical modelling

MCLEISH 2014

Tom C. B. McLeish et al., *A medieval multiverse*. *nature* **507** (2014), 161–163.

Tom C. B. McLeish, Richard G. Bower, Brian K. Tanner, Hannah E. Smithson, Cecilia Panti, Neil Lewis & Giles E. M. Gasper

Ideas in a thirteenth-century treatise on the nature of matter still resonate today, say Tom C. B. McLeish and colleagues.

Earlier this year we submitted an unusual paper to a scientific journal. What is unusual about it is not the topic — computations of how interactions between light and matter in the primordial Universe affected large-scale cosmic structures — but what inspired it. The paper draws on ideas in a medieval manuscript by the thirteenth-century English scholar Robert Grosseteste.

De Luce (On Light), written in 1225 in Latin and dense with mathematical thinking, explores the nature of matter and the cosmos. Four centuries before Isaac Newton proposed gravity and seven centuries before the Big Bang theory, Grosseteste describes the birth of the Universe in an explosion and the crystallization of matter to form stars and planets in a set of nested spheres around Earth.

To our knowledge, De Luce is the first attempt to describe the heavens and Earth using a single set of physical laws. Implying, probably unrealized by its author, a family of ordered universes in an ocean of disordered ones, the physics resembles the modern ‘multiverse’ concept.

Of course we know now, thanks to telescope observations from the early seventeenth century onwards, that a geocentric cosmos is untenable. But in 1225, it was the simplest theory consistent with the observations. Grosseteste’s effort to give a physical account of its origin is an impressive achievement, but it also reminds us of the limitations of our own current cosmological theory, with its reliance on intangible factors such as ‘dark matter’ and ‘dark energy’.

Neolithikum

LEONARDI 2012

Michela Leonardi, Pascale Gerbault, Mark G. Thomas & Joachim

Burger, *The evolution of lactase persistence in Europe, A synthesis of archaeological and genetic evidence*. [International Dairy Journal](#) **22** (2012), 88–97.

Lactase persistence, the ability to digest the milk sugar lactose in adulthood, is highly associated with a T allele situated 13,910 bp upstream from the actual lactase gene in Europeans. The frequency of this allele rose rapidly in Europe after transition from huntergatherer to agriculturalist lifestyles and the introduction of milkable domestic species from Anatolia some 8000 years ago. Here we first introduce the archaeological and historic background of early farming life in Europe, then summarize what is known of the physiological and genetic mechanisms of lactase persistence. Finally, we compile the evidence for a co-evolutionary process between dairying culture and lactase persistence. We describe the different hypotheses on how this allele spread over Europe and the main evolutionary forces shaping this process. We also summarize three different computer simulation approaches, which offer a means of developing a coherent and integrated understanding of the process of spread of lactase persistence and dairying.

By analyzing age and sex composition of an archaeozoological assemblage it is – in theory – possible to identify the exploitation strategy (Payne, 1973). Theoretically, the ideal dairying profile would require the culling of most animals younger than two months to allow humans to use most of the milk. An optimal meat strategy, on the other side, involves the harvesting of most animals after one to three years, when they achieve their maximum weight (Mlekuz, 2006). [...] On the basis of slaughtering age profiles Vigne (2008) and Vigne and Helmer (2007) have shown that the exploitation of sheep, goat and cattle in the Middle East and in Mediterranean Europe is consistent with milk production from the early Neolithic onwards.

Religion

IBÁÑEZ 2014

Juan José Ibáñez, Jesús E. González-Urquijo & Frank Braemer, *The human face and the origins of the Neolithic, The carved bone wand from Tell Qarassa North, Syria*. [Antiquity](#) **88** (2014), 81–94.

[Antiquity088-0081-Supplement1.pdf](#)

The origins of the Neolithic in the Near East were accompanied by significant ritual and symbolic innovations. New light is thrown on the social context of these changes by the discovery of a bone wand displaying two engraved human faces from the Early Neolithic site of Tell Qarassa in Syria, dating from the late ninth millennium BC. This small bone object from a funerary layer can be related to monumental statuary of the same period in the southern Levant and southeast Anatolia that probably depicted powerful supernatural beings. It may also betoken a new way of perceiving human identity and of facing the inevitability of death. By representing the deceased in visual form the living and the dead were brought closer together.

Keywords: Syria, Tell Qarassa North, ninth millennium BC, Pre-Pottery Neolithic, human representation, funerary ritual, figurative art, plastered skulls, Neolithic transition

Story or Book

BARD 2014

Kathryn Bard, *The city of Akhenaten and Nefertiti: Amarna and its people*. *Antiquity* **88** (2014), 318–319.

Barry Kemp. *The city of Akhenaten and Nefertiti: Amarna and its people*. 320 pages, 287 colour and b&w illustrations. 2012 (paperback edition 2013). London: Thames & Hudson; 978-0-500-05173-3 hardback £29.95; 978-0-500-29120-7 paperback £19.95.

Probably the book's most intriguing chapter concerns 'Quality of life' (Chapter 6), which makes inferences about the human domain which go far beyond standard interpretations of artefacts within their excavated contexts. [...] "inadequate nutrition in childhood, injuries to the skeleton and early death".

The results presented in this book demonstrate what can be achieved from long-term, yearly excavations (and re-excavations) of an entire ancient Egyptian city—applying the most up-to-date technologies and relevant multidisciplinary analyses. Undoubtedly, these investigations have cost a great deal of money, but Kemp's visionary research programme has ensured that all the expense and effort has been worthwhile. This is a superb book, written and illustrated by a superb archaeologist and scholar of ancient Egypt.

BINFORD 1988

Lewis R. Binford, *Reading the past*. *American Antiquity* **53** (1988), 875–876.

Reading the Past: Current Approaches to Interpretation in Archaeology. Ian Hodder. Cambridge University Press, Cambridge, 1986. xi + 194 pp., biblio., index. \$34.00 (cloth); \$9.95 (paper).

The science that I know about is very different from Hodder's characterization. Science simply assumes that the external world is knowable in terms of itself. The scientist fully recognizes that in acting on these assumptions, in the sense of seeking knowledge about the external world, we use our minds, imaginations, knowledge, alleged knowledge, and our unrecognized assumptive knowledge. The task of science therefore is to evaluate the utility and accuracy of our own ideas so as to bring our ideas about the external world increasingly into concordance with the way the external world works. In short, it is a continuously contentious and self-evaluative learning process.

Holy-moley, Hodder, you have just discovered science through Collingwood! This is a real accomplishment. We can evaluate our ideas about the past by reference to the "reality" remaining from the past.

Hodder is involved in a power play, seeking domination for his value-laden ideas. It is difficult to take seriously his suggestions about how we should deal with the real issues of archaeology when, after the loud parade passes by, what we do with the past is to be tempered and guided not by what the past was like but how it should be used today. More importantly, for Hodder the question is, Who should be the broker of the past for contemporary investors? This is a book about politics negotiated by Hodder, not about archaeology.