Liste erstellt am 2019-12-27

References

Aktuell

Chen 2019

Wei-Hsin Chen & Chia-Yang Chen, *Water gas shift reaction for hydrogen production and carbon dioxide capture, A review*. Applied Energy **258** (2019), 114078, 1–25.

Highlights:

- WGSR is an important reaction for H2 production and CO2 capture.
- A comprehensive review of the research progress in the WGSR is given.
- State-of-the-art thermodynamic and kinetic characteristics of the WGSR are underlined.
- WGSR behaviors in certain special environments are emphasized.
- WGSR in membrane reactors for carbon capture and H2 production is addressed.

The water gas shift reaction is an important and commonly employed reaction in the industry. In the water gas shift reaction, hydrogen is produced from water or steam while carbon monoxide is converted into carbon dioxide. Over the years, on account of the progress in hydrogen energy and carbon capture and storage for developing alternative fuels and mitigating the atmospheric greenhouse effect, the water gas shift reaction has become a crucial route to simultaneously reach the requirements of hydrogen production and carbon dioxide enrichment, thereby enhancing CO2 capture. This article provides a comprehensive review of the research progress in the water gas shift reaction, with particular attention paid to the thermodynamic and kinetic characteristics. The performance of the water gas shift reaction highly depends on the adopted catalysts whose progress in recent years is extensively reviewed. The behaviors of the water gas shift reaction in special environments are also illustrated, several cases have the ability to proceed with water gas shift reaction without any catalyst. The utilization of several separation technologies on the water gas shift reaction such as carbon capture and storage and membrane reactors for purifying hydrogen and enriching carbon dioxide will be addressed as well. Reviewing past studies suggests that separating hydrogen and carbon dioxide in the product gas from the water gas shift reaction can not only increase efficiency but also enhance the usability for further application. The CO conversion is beyond the thermodynamic limitation after applying membrane for the water gas shift reaction.

Keywords: Water gas shift reaction | Hydrogen production | Carbon capture and storage | Thermodynamics and kinetics | Catalyst | Palladium-based membrane

Stenzel 2019

Ashley Stenzel, *A mother's guilt*. science **366** (2019), 1278.

The sun was rising as we drove across the Minnesota state line, marking the moment my family and I left the only home we had ever known. I wanted to feel excited about my new Ph.D. program, but all I could feel was guilt. We were moving to New York so that I could pursue my goal of becoming a professor. The move was good for me professionally, but I worried about uprooting my husband and daughters. I also feared that—with the demands placed on me in grad school—I wouldn't be able to give my kids the childhood they deserved. The 3 years that have passed since then haven't been easy. But I've realized that I'm not the only person who benefits from my education. My kids do, too.

Anthropologie

Hoare 2019

Sally Hoare, *The possible role of predator–prey dynamics as an influence on early hominin use of burned landscapes*. Evolutionary Anthropology **28** (2019), 295–302.

Foraging in burned areas has been suggested to represent the earliest stage in the use and control of fire by early hominins. Recently burned areas offer immediate foraging benefits including increased search efficiency for high-ranked food items and decreased hunting opportunities for ambush predators. As such, they provide a triple-bonus (reduced risk from ambush, ease of terrestrial travel and higher foraging returns) for some primates. However, previous studies have not yet accounted for other types of predators e.g., coursing (endurance predators that can pursue prey over long distances) which were sympatric with hominins and may also have exploited these environments. Behavioral ecology studies on the use of burned landscapes by extant carnivores demonstrate that while some ambush predators avoid recently burned areas, coursing predators do take advantage of their immediate hunting opportunities. Research examining habitat selection by animals under the simultaneous threat of multiple predator species with different modes of hunting, and the diversity of Plio-Pleistocene carnivore guild is suggestive of two possible evolutionary scenarios in which hominins could either have selected or avoided burned areas (3–2 mya), based on whether ambush or coursing predators were perceived as presenting the greatest risk.

Hodgson 2019

Derek Hodgson, *The origin, significance, and development of the earliest geometric patterns in the archaeological record*. Journal of Archaeological Science: Reports **24** (2019), 588–592.

The growing corpus of non-functional geometric marks produced by different hominins has spawned considerable debate as to their significance. Some authorities claim the marks are in some way representational or symbolic while others are more cautious and view them as pre-symbolic in that they may derive from a protoaesthetic bias linked to how the early visual cortex functions. Recent neuroscanning techniques have allowed these competing claims to be tested. This paper considers the implications of current neuroscanning data to understanding the derivation and import of the earliest geometric patterns. After considering the relevant neuroscientific research, it is concluded that the first nonfunctional marks may not be representational or symbolic but are closely tied to the way the early visual cortex processes visual information.

Keywords: Neuroscans | Visual cortex | Word form area | Engraved patterns | Resonance | Symbolic

Hodgson 2019

Derek Hodgson, *Response to the critique by Mellet et al. of Hodgson's Neurovisual Resonance Theory*. Journal of Archaeological Science: Reports **28** (2019), 102041, 1–7.

Mellet et al. in their response to Hodgson's (2019) paper endeavour to defend the proposition that the earliest engravings are representational and possibly symbolic. Hodgson's Neurovisual Resonance Theory (NRT), however, contends that such engravings can be accounted for by long-standing evolutionary factors that shaped the early visual cortex in the same way that reading and writing are constrained by the same fundamentals. In this response, Hodgson provides further

and more recent evidence to support NRT while at the same time elucidating some inaccuracies and misunderstandings made by Mellet et al. in their critique.

Keywords: Neurovisual Resonance Theory | Brain Scans | Earliest Marks | Visual Cortex | Perception | Cognition

MELLET 2019

E. Mellet, I. Colagè, A. Bender, C. S. Henshilwood, K. Hugdahl, T. C. Lindstrøm & F. d'Errico, *What processes sparked off symbolic representations? A reply to Hodgson and an alternative perspective*. Journal of Archaeological Science: Reports **28** (2019), 102043, 1–8.

The Neurovisual Resonance Theory (NRT) proposes a framework for interpreting the earliest abstract engravings. It postulates that the first engraved marks produced by hominins reflected preferences of the early visual cortex for simple geometric patterns and served aesthetic rather than symbolic purposes. In a recent article published in this journal the proponent of this theory provides a synthesis of neuroimaging studies that he understands as supporting his theory while criticising a recent neuroimaging study conducted by some of us, which explores the possible symbolic function of the earliest engraved marks. In this paper, we point to a broader range of literature backing up our interpretation, scrutinize theoretical claims put forward by Hodgson, and test them against published and yet unpublished empirical evidence. We conclude that these data support the hypothesis that the earliest engravings served a representational purpose and may have served a symbolic function.

Keywords: Symbolism | Engraving | Cognitive archaeology | Neurovisual Resonance Theory | fMRI | Palaeolithic

MELLET 2019

E. Mellet, M. Salagnon, A. Majkić, S. Cremona, M. Joliot, G. Jobard, B. Mazoyer, N. Tzourio Mazoyer & F. d'Errico, *Neuroimaging supports the representational nature of the earliest human engravings*. Royal Society Open Science **6** (2019), 190086. DOI:10.1098/rsos.190086.

The earliest human graphic productions, consisting of abstract patterns engraved on a variety of media, date to the Lower and Middle Palaeolithic. They are associated with anatomically modern and archaic hominins. The nature and significance of these engravings are still under question. To address this issue, we used functional magnetic resonance imaging to compare brain activations triggered by the perception of engraved patterns dating between 540 000 and 30 000 years before the present with those elicited by the perception of scenes, objects, symbol-like characters and written words. The perception of the engravings bilaterally activated regions along the ventral route in a pattern similar to that activated by the perception of objects, suggesting that these graphic productions are processed as organized visual representations in the brain. Moreover, the perception of the engravings led to a leftward activation of the visual word form area. These results support the hypothesis that these engravings have the visual properties of meaningful representations in present-day humans, and could have served such purpose in early modern humans and archaic hominins.

Keywords: human evolution | symbols | engravings | perception | ventral pathway | functional magnetic resonance imaging

Bibel

Schleiff 1936

Arnold Schleiff, *Der Gottesname Jahwe*. Zeitschrift der Deutschen Morgenländischen Gesellschaft **90** (1936), 679–702.

Damit zeigt sich, daß die – in jüngster Zeit übrigens oftmals vorgeschlagene – Gottesnamensurform Jah, der der Inhalt "Der" zugrunde liegt, nicht nur trefflich in die Struktur der israelitischen Religion sich einfügt, sondern zugleich für die Erhellung der Kernfragen wichtige Hinweise geben kann. Das ist deshalb so verlockend, weil einmal dadurch die alte israelitische Religion und ihre Geschichte aus sich verständlich wird und weil dazu der Ideengehalt des ganzen israelitischen Denkens in die gleiche Richtung weist.

Islam

Fück 1936

Johann Fück, *Die Originalität des arabischen Propheten*. Zeitschrift der Deutschen Morgenländischen Gesellschaft **90** (1936), 509–525.

Klima

Hausfather 2019

Zeke Hausfather, Henri F. Drake, Tristan Abbott & Gavin A. Schmidt, *Evaluating the performance of past climate model projections*. Geophysical Research Letters (2019), preprint, 1–18. DOI:10.1029/2019GL085378.

Key points:

- Evaluation of uninitialized multi-decadal climate model future projection performance provides a concrete test of model skill.
- The quasi-linear relationship between model / observed forcings and temperature change is used to control for errors in projected forcing.
- Model simulations published between 1970 and 2007 were skillful in projecting future global mean surface warming.

Retrospectively comparing future model projections to observations provides a robust and independent test of model skill. Here we analyse the performance of climate models published between 1970 and 2007 in projecting future global mean surface temperature (GMST) changes. Models are compared to observations based on both the change in GMST over time and the change in GMST over the change in external forcing. The latter approach accounts for mismatches in model forcings, a potential source of error in model projections independent of the accuracy of model physics. We find that climate models published over the past five decades were skillful in predicting subsequent GMST changes, with most models examined showing warming consistent with observations, particularly when mismatches between model-projected and observationally-estimated forcings were taken into account.

Kultur

Majolo 2019

Bonaventura Majolo, *Warfare in an evolutionary perspective*. Evolutionary Anthropology **28** (2019), 321–331.

The importance of warfare for human evolution is hotly debated in anthropology. Some authors hypothesize that warfare emerged at least 200,000–100,000 years BP, was frequent, and significantly shaped human social evolution. Other authors claim that warfare is a recent phenomenon, linked to the emergence of agriculture, and mostly explained by cultural rather than evolutionary forces. Here I highlight and critically evaluate six controversial points on the evolutionary bases of warfare. I argue that cultural and evolutionary explanations on the emergence of warfare are not alternative but analyze biological diversity at two distinct levels. An evolved propensity to act aggressively toward outgroup individuals may emerge irrespective of whether warfare appeared early/late during human evolution. Finally, I argue that lethal violence and aggression toward outgroup individuals are two linked but distinct phenomena, and that war and peace are complementary and should not always be treated as two mutually exclusive behavioral responses.
Keywords: aggression | competition | conflict | cooperation | peace | social evolution | violence | war

Neolithikum

Müller 2001

Johannes Müller, *Soziochronologische Studien zum Jung- und Spätneolithikum im Mittelelbe-Saale-Gebiet (4100–2700 v. Chr.), Eine sozialhistorische Interpretation prähistorischer Quellen.* Vorgeschichtliche Forschungen 21 (Rahden 2001).