

Literatur

Aktuell

HALBERDA 2012

Justin Halberda, Ryan Ly, Jeremy B. Wilmer, Daniel Q. Naiman & Laura Germine, *Number sense across the lifespan as revealed by a massive Internet-based sample*. [PNAS](#) **109** (2012), 11116–11120.

[pnas109-11116-Supplement1.gif](#), [pnas109-11116-Supplement2.gif](#)

It has been difficult to determine how cognitive systems change over the grand time scale of an entire life, as few cognitive systems are well enough understood; observable in infants, adolescents, and adults; and simple enough to measure to empower comparisons across vastly different ages. Here we address this challenge with data from more than 10,000 participants ranging from 11 to 85 years of age and investigate the precision of basic numerical intuitions and their relation to students' performance in school mathematics across the lifespan. We all share a foundational number sense that has been observed in adults, infants, and nonhuman animals, and that, in humans, is generated by neurons in the intraparietal sulcus. Individual differences in the precision of this evolutionarily ancient number sense may impact school mathematics performance in children; however, we know little of its role beyond childhood. Here we find that population trends suggest that the precision of one's number sense improves throughout the schoolage years, peaking quite late at ≈ 30 y. Despite this gradual developmental improvement, we find very large individual differences in number sense precision among people of the same age, and these differences relate to school mathematical performance throughout adolescence and the adult years. The large individual differences and prolonged development of number sense, paired with its consistent and specific link to mathematics ability across the age span, hold promise for the impact of educational interventions that target the number sense.
aging | analog magnitude | approximate number system | cognitive development | ensemble representation

HAYES 2012

Brian Hayes, *Ein Abenteuer in n Dimensionen*. [Spektrum der Wissenschaft](#) **2012**, viii, 52–58.

Eine Kugel passt gerade noch in eine Kiste, und doch ist sie darin praktisch nicht mehr zu finden. Solche Merkwürdigkeiten erwarten jeden Besucher hochdimensionaler Räume.

KING 2012

Andrew J. King, Alan M. Wilson, Simon D. Wilshin, John Lowe, Hamed Haddadi, Stephen Hailes, & A. Jennifer Morton, *Selfish-herd behaviour of sheep under threat*. [Current Biology](#) **22** (2012), R561–R562.

[CurrBiol22-R561-Supplement1.pdf](#), [CurrBiol22-R561-Supplement2.avi](#), [CurrBiol22-R561-Supplement3.avi](#), [CurrBiol22-R561-Supplement4.avi](#)

To escape a hungry wolf, a sheep doesn't have to outrun the wolf, just the other sheep in its flock. Many researchers think that such selfish behavior, not cooperation for the benefit of the whole crowd, shapes the movements of groups of animals. But the decades-old "selfish herd theory" has been hard to back up with data. Now, a detailed analysis of how a flock of sheep moves to avoid a sheepdog has found that the theory holds true. Each sheep heads to safety in the center of the flock, rather than running directly away from the dog.

MAC CARRON 2012

Pádraig Mac Carron & Ralph Kenna, *Universal properties of mythological networks*. [Europhysics Letters](#) **99** (2012), 28002. DOI:10.1209/0295-5075/99/28002.

As in statistical physics, the concept of universality plays an important, albeit qualitative, role in the field of comparative mythology. Here we apply statistical mechanical tools to analyse the networks underlying three iconic mythological narratives with a view to identifying common and distinguishing quantitative features. Of the three narratives, an Anglo-Saxon and a Greek text are mostly believed by antiquarians to be partly historically based while the third, an Irish epic, is often considered to be fictional. Here we use network analysis in an attempt to discriminate real from imaginary social networks and place mythological narratives on the spectrum between them. This suggests that the perceived artificiality of the Irish narrative can be traced back to anomalous features associated with six characters. Speculating that these are amalgams of several entities or proxies, renders the plausibility of the Irish text comparable to the others from a network-theoretic point of view.

MCCANDLISS 2012

Bruce D. McCandliss, *Helping dyslexic children attend to letters within visual word forms*. [PNAS](#) **109** (2012), 11064–11065.

SCHLICHTING 2012

H. Joachim Schlichting, *Gleich und Gleich gesellt sich gern*. [Spektrum der Wissenschaft](#) **2012**, viii, 49–51.

Objekte, die auf Wasseroberflächen schwimmen, verhalten sich oft unerwartet. Verantwortlich dafür sind die beteiligten Grenzflächenenergien.

TUGENDHAFT 2012

Aaron Tugendhaft, *Images and the Political: On Jan Assmann's Concept of Idolatry*. [Method and Theory in the Study of Religion](#) **24** (2012), 301–306.

This essay explores the political implications and historical basis of noted Egyptologist Jan Assmann's assertion-based on a distinction made canonical by Carl Schmitt—that the Biblical prohibition of images polarizes the world into friend and enemy. The focus is on two aspects of Assmann's position: his claims regarding how the Bible represents Egypt and how he reads the first two commandments of the Decalogue. The essay concludes that Assmann relies more on the reception history than on the biblical text itself and ends with a suggestion regarding how to get at an alternative view of the Bible's political understanding of idolatry.

Keywords: idolatry, Jan Assmann, images, Carl Schmitt, political, Decalogue, friend/enemy distinction

Anthropologie

ZORZI 2012

Marco Zorzi, *Extra-large letter spacing improves reading in dyslexia*. [PNAS](#) **109** (2012), 11455–11459.

Marco Zorzi, Chiara Barbiero, Andrea Facchetti, Isabella Lonciari, Marco Carrozzi, Marcella Montico, Laura Bravar, Florence George, Catherine Pech-Georgel and Johannes C. Ziegler

Although the causes of dyslexia are still debated, all researchers agree that the main challenge is to find ways that allow a child with dyslexia to read more words in less time, because reading more is undisputedly the most efficient intervention for dyslexia. Sophisticated training programs exist, but they typically target the component skills of reading, such as phonological awareness. After the component skills have improved, the main challenge remains (that is, reading deficits must be treated by reading more—a vicious circle for a dyslexic child). Here, we show that a simple manipulation of letter spacing substantially improved text reading performance on the fly (without any training) in a large, unselected sample of Italian and French dyslexic children. Extra-large letter spacing helps reading, because dyslexics are abnormally affected by crowding, a perceptual phenomenon with detrimental effects on letter recognition that is modulated by the spacing between letters. Extra-large letter spacing may help to break the vicious circle by rendering the reading material more easily accessible.

visual-attentional deficits | word recognition | orthographic processing | print

Bibel

FINKELSTEIN 1999

Israel Finkelstein, *State Formation in Israel and Judah, A contrast in context, a contrast in trajectory*. [Near Eastern Archaeology 62 \(1999\), 35–52](#).

Assuming that a United Monarchy did exist (that is, regardless of its exact territorial-political status, it was not a fictitious, later invention), the unification of the central hill country in the 10th century BCE was a short-lived exception in the history of the highlands, while the contrasting circumstances and political systems of the two kingdoms, Israel and Judah, better reflect the deeper, pervasive, and long-term structures of Levantine regional history. Israel and Judah were two distinct territorial, socio-political and cultural phenomena. This dichotomy stemmed from their different environmental conditions and their contrasting history in the second millennium BCE. Israel was characterized by significant continuity in Bronze Age cultural traits, by heterogeneous population and by strong contacts with its neighbors. Judah was characterized by isolation and by local, Iron Age cultural features, as evidenced in the layout of its provincial administrative towns. Judah opened to international trade and to neighboring civilizations only with the Assyrian takeover of the entire region in the late 8th century BCE. The Assyrian conquest brought about the collapse of the cultural barriers between the inland national states of the Levant.

Grabung

AKKERMANS 1995

Peter M. M. G. Akkermans & Marc Verhoeven, *An Image of Complexity: The Burnt Village at Late Neolithic Sabi Abyad, Syria*. [American Journal of Archaeology 99 \(1995\), 5–32](#).

The site of Tell Sabi Abyad in the upper Balikh valley of northern Syria is the focal point of a regionally oriented research project investigating the socioeco-nomic organization of later Neolithic society in the region. Recent excavations at Tell Sabi Abyad have brought to light a well-preserved settlement dating from the late sixth millennium B.C. and heavily affected by a violent fire, the so-called Burnt Village. The village consists of rectangular, multiroomed houses built of pise along very regular lines and surrounded by smaller circular structures. Thousands of finds were recovered in situ from the burned houses, including ceramic and stone vessels, flint and obsidian implements, ground stone tools,

human and animal figurines, labrets, axes, and personal ornaments. Most exciting, however, are the hundreds of clay sealings with stamp-seal impressions and the small tokens, which point to a very early but well-developed system of recording and administration. The Burnt Village was part of extensive networks of long-and short-distance exchange, and its inhabitants maintained relationships with groups of people in distant areas, such as the coastal regions of the Levant, the piedmont of southeastern Turkey, and the plains of Mesopotamia. External resources were mobilized and exploited in a regular manner and to a considerable extent, i.e., beyond the level of incidental transactions.

AKKERMANS 2010

P. M. M. G. Akkermans, J. van der Plicht, O. P. Nieuwenhuys, A. Russell, A. Kaneda & H. Buitenhuis, *Weathering climate change in the Near East: dating and Neolithic adaptations 8200 years ago*. *Antiquity* **84** (2010), plicht325.

<<http://www.antiquity.ac.uk/projgall/plicht325/>>.

Antiquity084-plicht325-Akkermans_files

The effect of abrupt climate change on prehistoric societies is still inadequately explored. Climate change is frequently linked to societal collapse (Weiss & Bradley 2001; Weninger et al. 2006), but evidence is thus far circumstantial, and we need to be aware of the ever-present danger of determinism.

Tell Sabi Abyad (northern Syria), a key-site for the Late Neolithic in Upper Mesopotamia, was continuously inhabited during the seventh millennium, spanning the 8.2 ka event. Many cultural and economic transitions are seen in the archaeological record around 6200 BC.

VAN DER PLICHT 2011

J. van der Plicht, P. M. M. G. Akkermans, O. Nieuwenhuys, A. Kaneda & A. Russell, *Tell Sabi Abyad, Syria: Radiocarbon chronology, cultural change, and the 8.2 ka event*. *Radiocarbon* **53** (2011), 229–243.

At Tell Sabi Abyad, Syria, we obtained a robust chronology for the 7th to early 6th millennium BC, the Late Neolithic. The chronology was obtained using a large set of radiocarbon dates, analyzed by Bayesian statistics. Cultural changes observed at \approx 6200 BC are coeval with the 8.2 ka climate event. The inhabitation remained continuous.

USSISHKIN 1980

David Ussishkin, *Was the “Solomonic” City Gate at Megiddo Built by King Solomon?* *Bulletin of the American Schools of Oriental Research* **239** (1980), 1–18.

Summing up the internal evidence, we argue that the “Solomonic” gatehouse was built on a massive foundation structure and that it joined, and was constructed together with, City Wall 325. Thus we must conclude that the gate belongs to Stratum IVA and dates later than the period of Solomon. It follows that the chalk-paved approach and the small gatehouse of Stratum VA-IVB (Loud 1948: 39-45; fig. 388) served as an entry to Solomonic Megiddo. This gate is badly preserved, probably having been robbed of its (ashlar?) stones, as was the case with the palaces of Stratum VA-IVB. This small gate fits very well with the nature of the fortifications of that level. The emphasis of the Solomonic constructions at Megiddo mentioned in 1 Kgs 9:15 was clearly on monumental palace compounds rather than on strong fortifications. In the gate area there is a clear difference between the small gatehouse of Stratum VA-IVB, meant mainly to enable access to the city, and the massive gate complex of Stratum IVA, meant mainly to defend the city. This difference fits well with the radical change that took place in Megiddo between Strata VA-IVB and IVA.

YADIN 1969

Y. Yadin, *Excavations at Hazor, 1968–1969, Preliminary Communiqué*. [Israel Exploration Journal](#) **19** (1969), 1–19.

YADIN 1972

Yigael Yadin, *Hazor, The head of all those Kingdoms (Joshua 11:10)*. The Schweich lectures 1970 (London 1972).

ZUCKERMAN 2007

Sharon Zuckerman, *Anatomy of a Destruction: Crisis Architecture, Termination Rituals and the Fall of Canaanite Hazor*. [Journal of Mediterranean Archaeology](#) **20** (2007), 3–32.

Destruction levels, a recurring feature in ancient Near Eastern tell sites, are too often treated as isolated events. Recent scholarship on the formation processes of the archaeological record stresses the need to understand site destructions as part of long-term processes, rather than as isolated and unique events. This paper offers a model for studying destruction based on the concepts of the materialization of ritual and royal ideology. The identification of crisis architecture and termination rituals is used to shed new light on the activities taking place at the site prior to its final destruction and abandonment. This model is applied to the destruction of Canaanite Hazor at the end of the Late Bronze Age, and provides an alternative view of this event as a result of social, political, cultural and ideological circumstances rather than as an isolated event, stressing the role of internal socio-economic and ideological factors rather than external agents.

Keywords: Crisis architecture, termination rituals, Israel, Hazor, Late Bronze Age, Canaan

Isotope

HART 2012

John P. Hart, William A. Lovis, Robert J. Jeske, & John D. Richards, *The potential of bulk $\delta^{13}\text{C}$ on encrusted cooking residues as independent evidence for regional maize histories*. [American Antiquity](#) **77** (2012), 315–325.

The histories of maize utilization in eastern North America have been substantially revised recently, primarily because of the analysis of charred cooking residues encrusted on pottery. A multifaceted research strategy of bulk $\delta^{13}\text{C}$ assays coupled with accelerator mass spectrometry radiocarbon data and microbotanical evidence can yield coherent regional maize use histories. Bulk $\delta^{13}\text{C}$ assay interpretation complications include (1) variations among vessels by site, (2) a potential for false negatives, and (3) a wide range of variation potentially present for any given time period. Regional histories using this approach can be quite variable without appropriate use of multiple lines of evidence.

KLUGE 2012

Tobias Kluge & Hagit P. Affek, *Quantifying kinetic fractionation in Bunker Cave speleothems using Δ_{47}* . [Quaternary Science Reviews](#) **49** (2012), 82–94. [qsr49-0082-Supplement.doc](#)

Isotopic signals in speleothems are used for investigating paleoclimate variability on land and are useful to constrain the dating of prominent climate events. A quantitative use, however, is limited by an incomplete understanding of parameters contributing to the carbon and oxygen isotope signals. These include external and environmental parameters such as $\delta^{18}\text{O}$ of cave drip waters as well as internal parameters associated

with speleothem formation, such as the presence of non-equilibrium effects and especially the magnitude of their isotopic shifts.

We explore the use of clumped isotopes as a new tool for investigating the kinetic isotope effect in speleothems. Holocene and modern speleothems from Bunker Cave (Germany) as well as modern material from the adjacent Dechen Cave are all offset from the equilibrium relationship due to kinetic fractionation. This kinetic offset in clumped isotopes is observed in a stalagmite despite mostly negative Hendy tests, providing a sensitive indicator for kinetic fractionation in cave carbonates. The temperature dependence of the clumped isotope values (0.005‰ per °C) is low compared to the observed magnitude of kinetic offsets (between -0.021 and -0.075‰), so that the mean offsets in apparent temperatures due to kinetic isotope effects are on the order of 10 °C. As a result clumped isotopes are useful in identifying temporal variations in the kinetic fractionation in a stalagmite, when the temperatures during the speleothem growth period are either relatively constant (variations <2 °C) or can be independently constrained.

The variations in the kinetic isotope fractionation in Bunker Cave are associated with changing drip water super saturation with periods of stronger prior calcite precipitation associated with lower kinetic offsets in the speleothem calcite. In contrast, stalagmite growth rates show no direct correlation with the degree of kinetic fractionation in the investigated range (13–1500 mm/a).

Keywords: Stalagmite | Clumped isotopes | Equilibrium fractionation | Holocene | Hendy test | Growth rate

Klima

BUNCH 2012

Ted E. Bunch et al., *Very high-temperature impact melt products as evidence for cosmic airbursts and impacts 12,900 years ago*. [PNAS 109 \(2012\), 11066–11067](#).

[pnas109-11066-Fulltext.pdf](#)

Ted E. Bunch, Robert E. Hermes, Andrew M. T. Moore, Douglas J. Kennett, James C. Weaver, James H. Wittke, Paul S. DeCarli, James L. Bischoff, Gordon C. Hillman, George A. Howard, David R. Kimbel, Gunther Kletetschka, Carl P. Lipo, Sachiko Sakai, Zsolt Revay, Allen West, Richard B. Firestone and James P. Kennett

It has been proposed that fragments of an asteroid or comet impacted Earth, deposited silica- and iron-rich microspherules and other proxies across several continents, and triggered the Younger Dryas cooling episode 12,900 years ago. Although many independent groups have confirmed the impact evidence, the hypothesis remains controversial because some groups have failed to do so. We examined sediment sequences from 18 dated Younger Dryas boundary (YDB) sites across three continents (North America, Europe, and Asia), spanning 12,000 km around nearly one-third of the planet. All sites display abundant microspherules in the YDB with none or few above and below. In addition, three sites (Abu Hureyra, Syria; Melrose, Pennsylvania; and Blackville, South Carolina) display vesicular, high-temperature, siliceous scoria-like objects, or SLOs, that match the spherules geochemically. We compared YDB objects with melt products from a known cosmic impact (Meteor Crater, Arizona) and from the 1945 Trinity nuclear airburst in Socorro, New Mexico, and found that all of these high-energy events produced material that is geochemically and morphologically comparable, including: (i) high-temperature, rapidly quenched microspherules and SLOs; (ii) corundum, mullite, and suessite (Fe₃Si), a rare meteoritic mineral that forms under high temperatures; (iii) melted SiO₂ glass, or lechatelierite, with flow textures (or schlieren) that form at >2,200 °C; and (iv) particles with features indicative of high-energy interparticle collisions. These results are inconsistent with anthropogenic, volcanic, authigenic, and cosmic materials, yet consistent with

cosmic ejecta, supporting the hypothesis of extraterrestrial airbursts/impacts 12,900 years ago. The wide geographic distribution of SLOs is consistent with multiple impactors.
tektite | microcraters | oxygen fugacity | trinitite

LIU 2012

Zhengyu Liu et al., *Younger Dryas cooling and the Greenland climate response to CO₂*. [PNAS 109 \(2012\), 11101–11104](#).

Zhengyu Liu, Anders E. Carlson, Feng He, Esther C. Brady, Bette L. Otto-Bliesner, Bruce P. Briegleb, Mark Wehrenberg, Peter U. Clark, Shu Wu, Jun Cheng, Jiaxu Zhang, David Noone and Jiang Zhu

Greenland ice-core d18O-temperature reconstructions suggest a dramatic cooling during the Younger Dryas (YD; 12.9–11.7 ka), with temperatures being as cold as the earlier Oldest Dryas (OD; 18.0–14.6 ka) despite an approximately 50 ppm rise in atmospheric CO₂. Such YD cooling implies a muted Greenland climate response to atmospheric CO₂, contrary to physical predictions of an enhanced high-latitude response to future increases in CO₂. Here we show that North Atlantic sea surface temperature reconstructions as well as transient climate model simulations suggest that the YD over Greenland should be substantially warmer than the OD by approximately 5 °C in response to increased atmospheric CO₂. Additional experiments with an isotope-enabled model suggest that the apparent YD temperature reconstruction derived from the ice-core d18O record is likely an artifact of an altered temperature-d18O relationship due to changing deglacial atmospheric circulation. Our results thus suggest that Greenland climate was warmer during the YD relative to the OD in response to rising atmospheric CO₂, consistent with sea surface temperature reconstructions and physical predictions, and has a sensitivity approximately twice that found in climate models for current climate due to an enhanced albedo feedback during the last deglaciation.

oxygen isotope | arctic climate | global warming

Methoden

RAMISCH 2012

Arne Ramisch, Wiebke Bebermeier, Kai Hartmann, Brigitta Schütt & Nicole Alexanian, *Fractals in topography: Application to geoarchaeological studies in the surroundings of the necropolis of Dahshur, Egypt*. [Quaternary International 266 \(2012\), 34–46](#).

The necropolis of Dahshur in northern Egypt witnessed humaneenvironment interaction on a millennial scale but to an unknown extent. The present study aims to decipher ephemeral channel networks, which are common landscape features in the surroundings of the necropolis, from landforms that were subject to human influence. The analysis was carried out on the basis of surface geometry as derived from a digital elevation model (DEM). The hypothesis is tested that the natural fractal patterns of channel networks lead to fractal surface topography, when fluvial processes are the main factors for relief evolution. Therefore, the estimated fractal dimension of channel networks is correlated with the fractal dimension of surface topography to determine the mutual functional relationship. A high degree of functional relationship within some areas of the DEM shows that channel networks are self-similar branching trees that imprint their geometry on to surface topography in a scale range of ≈ 15 to ≈ 190 m. A low correlation of fractal patterns of channel network and surface topography in the vicinity of the pyramid district of the necropolis is interpreted as channel beds modified or induced by human impact, either due to the usage of the channel beds as transport ways for building material leading to an acceleration of processes like soil erosion or due to direct activities like mining or landscape architecture.

Mittelpaläolithikum

SHAW 2012

Colin N. Shaw, Cory L. Hofmann, Michael D. Petraglia, Jay T. Stock & Jinger S. Gottschall, *Neandertal Humeri May Reflect Adaptation to Scraping Tasks, but Not Spear Thrusting*. *PLoS ONE* 7 (2012), e40349. DOI:10.1371/journal.pone.0040349.

Unique compared with recent and prehistoric *Homo sapiens*, Neandertal humeri are characterised by a pronounced right-dominant bilateral strength asymmetry and an anteroposteriorly strengthened diaphyseal shape. Remodeling in response to asymmetric forces imposed during regular underhanded spear thrusting is the most influential explanatory hypothesis. The core tenet of the “Spear Thrusting Hypothesis”, that underhand thrusting requires greater muscle activity on the right side of the body compared to the left, remains untested. It is unclear whether alternative subsistence behaviours, such as hide processing, might better explain this morphology. To test this, electromyography was used to measure muscle activity at the primary movers of the humerus (pectoralis major (PM), anterior (AD) and posterior deltoid (PD)) during three distinct spear-thrusting tasks and four separate scraping tasks. Contrary to predictions, maximum muscle activity (MAX) and total muscle activity (TOT) were significantly higher (all values, $p < .05$) at the left (non-dominant) AD, PD and PM compared to the right side of the body during spear thrusting tasks. Thus, the muscle activity required during underhanded spearing tasks does not lend itself to explaining the pronounced right dominant strength asymmetry found in Neandertal humeri. In contrast, during the performance of all three unimanual scraping tasks, right side MAX and TOT were significantly greater at the AD (all values, $p < .01$) and PM (all values, $p < .02$) compared to the left. The consistency of the results provides evidence that scraping activities, such as hide preparation, may be a key behaviour in determining the unusual pattern of Neandertal arm morphology. Overall, these results yield important insight into the Neandertal behavioural repertoire that aided survival throughout Pleistocene Eurasia.

Neolithikum

AKKERMANS 2004

Peter M. M. G. Akkermans, *Hunter-Gatherer Continuity: The transition from the Epipalaeolithic to the Neolithic in Syria*. In: OLIVIER AURENCHE, MARIE LE MIERE & PAUL SANLAVILLE (Hrsg.), *From the River to the Sea – The Paleolithic and the Neolithic on the Euphrates and in the Northern Levant, Studies in honour of Lorraine Copeland*. BAR International Series 1263 (Oxford 2004), 281–293.

Small, short-term hunter-gatherer occupations, rather than large, permanently occupied farming villages, were the rule in Syria in the early Neolithic, ca. 10,000-7500 BC. The sedentary lifestyle seems to have appealed only to a small number of people for a very long time. The handful of larger hunter-gatherer settlements of this period, characterized by sometimes long sequences and complex architecture, served ritual purposes, in addition to their role in domestic contexts. The communities, large and small, had much in common with their Epipalaeolithic forebears; profound changes in the forager lifestyle took place late in the Neolithic sequence.

Story or Book

LÖSER 2012

Reinhard Löser, *Pflichtlektüre für Entscheider*. [Spektrum der Wissenschaft 2012](#), viii, 94–95.

Das ist man bei dem heiß umstrittenen Thema Energiewende gar nicht mehr gewohnt: Johannes Winterhagen praktiziert die klassischen Tugenden sachliche Korrektheit, Informationsfülle und Ausgewogenheit.

Johannes Winterhagen. *Abgeschaltet. Was mit der Energiewende auf uns zukommt*. Hanser, München 2012. 252 S., E 17,90

Da der Atomausstieg nun besiegelt ist, so die bittere Erkenntnis Winterhagens, müssen wir für die Grundversorgung vorläufig auf fossile Brennstoffe zurückgreifen, mit den bekannten negativen Auswirkungen. Wahrscheinlich werden wir noch viele Jahre und Jahrzehnte mit ihnen leben müssen.

Zum Schluss formuliert Winterhagen sechs Thesen: 1. Energiesparen rettet die Welt nicht; 2. Wind und Sonnenstrom reichen auf absehbare Zeit nicht aus; 3. Es geht nicht ohne große zentrale Kraftwerke; 4. Neue fossile Kraftwerke sollten Vorfahrt erhalten; 5. Die Energieforschung muss intensiviert werden; 6. Vergessen wir den Konsens! Streiten wir über den Weg!