Liste erstellt am 2016-05-26

References

Buck 2014

Laura T. Buck & Chris B. Stringer, *Having the stomach for it: A contribution to Neanderthal diets?* Quaternary Science Reviews **96** (2014), 161–167.

Due to the central position of diet in determining ecology and behaviour, much research has been devoted to uncovering Neanderthal subsistence strategies. This has included indirect studies inferring diet from habitat reconstruction, ethnographic analogy, or faunal assemblages, and direct methods, such as dental wear and isotope analyses. Recently, studies of dental calculus have provided another rich source of dietary evidence, with much potential. One of the most interesting results to come out of calculus analyses so far is the suggestion that Neanderthals may have been eating non-nutritionally valuable plants for medicinal reasons. Here we offer an alternative hypothesis for the occurrence of non-food plants in Neanderthal calculus based on the modern human ethnographic literature: the consumption of herbivore stomach contents.

Keywords: Neanderthal | Diet | Calculus | Palaeolithic

Hardy 2012

Karen Hardy et al., *Neanderthal medics? Evidence for food, cooking, and medicinal plants entrapped in dental calculus.* Naturwissenschaften **27** (2012), 617–626.

Naturw099-0617-Supplement1.pdf, Naturw099-0617-Supplement2.pdf, Naturw099-0617-Supplement3.pdf, Naturw099-0617-Supplement4.pdf, see: Antiquity089-0464-Krief.pdf (2015)

Karen Hardy, Stephen Buckley, Matthew J. Collins, Almudena Estalrrich & Don Brothwell, Les Copeland, Antonio García-Tabernero & Samuel García-Vargas, Marco de la Rasilla, Carles Lalueza-Fox & Rosa Huguet, Markus Bastir, David Santamaría, Marco Madella & Julie Wilson, IJngel Fernández Cortés & Antonio Rosas

Neanderthals disappeared sometime between 30,000 and 24,000 years ago. Until recently, Neanderthals were understood to have been predominantly meat-eaters; however, a growing body of evidence suggests their diet also included plants. We present the results of a study, in which sequential thermal desorption-gas chromatography-mass spectrometry (TD-GC-MS) and pyrolysis-gas chromatographymass spectrometry (Py-GC-MS) were combined with morphological analysis of plant microfossils, to identify material entrapped in dental calculus from five Neanderthal individuals from the north Spanish site of El Sidrón. Our results provide the first molecular evidence for inhalation of wood-fire smoke and bitumen or oil shale and ingestion of a range of cooked plant foods. We also offer the first evidence for the use of medicinal plants by a Neanderthal individual. The varied use of plants that we have identified suggests that the Neanderthal occupants of El Sidrón had a sophisticated knowledge of their natural surroundings which included the ability to select and use certain plants.

Keywords: Neanderthals | El Sidrón | Dental calculus | Diet | Self-medication

Hardy 2013

Karen Hardy, Stephen Buckley & Michael Huffman, *Neanderthal self-medication in context*. Antiquity **87** (2013), 873–878.

see: Antiquity089-0464-Krief.pdf (2015)

Though all primates (and other animals) have varying levels of enzymes which make us more or less tolerant of certain toxins, there are plants which are poisonous to all; in order to survive, hominins needed to know which plants not to eat and how and when to eat those plants they selected. The use of edible bitter tasting plants by the Neanderthals of El Sidr'on suggests their knowledge was sufficiently refined to use plants with confidence even when their bitter taste warned of potential toxicity. This demonstrates that their knowledge of plants was at least equal to today's higher primates; with their additional linguistic and technological abilities it may have been far more elaborate. Rather than contradicting the extensive evidence for consumption of meat, the evidence for the use of plants adds a rich new dimension to our developing knowledge of Neanderthal life. We can never know for sure why yarrow and camomile were ingested at El Sidr'on, but we propose that the evidence for self-medication offers the most convincing behavioural context.

Henry 2011

Amanda G. Henry, Alison S. Brooks & Dolores R. Piperno, *Microfossils in calculus demonstrate consumption of plants and cooked foods in Neanderthal diets (Shanidar III, Iraq; Spy I and II, Belgium)*. PNAS **108** (2011), 486–491.

pnas108-00486-Supplement.pdf, pnas108-00486-Comment.pdf, pnas108-00486-Reply.pdf

The nature and causes of the disappearance of Neanderthals and their apparent replacement by modern humans are subjects of considerable debate. Many researchers have proposed biologically or technologically mediated dietary differences between the two groups as one of the fundamental causes of Neanderthal disappearance. Some scenarios have focused on the apparent lack of plant foods in Neanderthal diets. Here we report direct evidence for Neanderthal consumption of a variety of plant foods, in the form of phytoliths and starch grains recovered from dental calculus of Neanderthal skeletons from Shanidar Cave, Iraq, and Spy Cave, Belgium. Some of the plants are typical of recent modern human diets, including date palms (Phoenix spp.), legumes, and grass seeds (Triticeae), whereas others are known to be edible but are not heavily used today. Many of the grass seed starches showed damage that is a distinctive marker of cooking. Our results indicate that in both warm eastern Mediterranean and cold northwestern European climates, and across their latitudinal range, Neanderthals made use of the diverse plant foods available in their local environment and transformed them into more easily digestible foodstuffs in part through cooking them, suggesting an overall sophistication in Neanderthal dietary regimes.

Krief 2015

Sabrina Krief, Camille Daujeard, Marie-Hélène Moncel, Noemie Lamon & Vernon Reynolds, *Flavouring food: the contribution of chimpanzee behaviour to the understanding of Neanderthal calculus composition and plant use in Neanderthal diets*. Antiquity **89** (2015), 464–471.

In conclusion, if the presence of camomile and yarrow in calculus samples from Neanderthals can be explained as self-medication, we suggest that the data are not sufficient to exclude other deliberate food practices such as the consumption of

the stomach contents of prey (thereby indirectly consuming plant material) or the addition of plants as aromatics or spices, deliberately mixing them with the prey to decrease the risk of infection.

Madhusoodanan 2016

Jyoti Madhusoodanan, *Ancient teeth reveal clues about microbiome evolution*. PNAS **113** (2016), 5764–5765.

"We know almost nothing about the evolution of the human microbiome," says Warinner. "We have dramatically altered our lifestyles over the last several centuries; how has this affected our microbes?"

Radini 2016

Anita Radini, Stephen Buckley, Antonio Rosas, Almudena Estalrrich, Marco de la Rasilla & Karen Hardy, *Neanderthals, trees and dental calculus, New evidence from El Sidrón*. Antiquity **90** (2016), 290–301.

Analysis of dental calculus is increasingly important in archaeology, although the focus has hitherto been on dietary reconstruction. Non-edible material has, however, recently been extracted from the dental calculus of a Neanderthal population from the 49 000-year-old site of El Sidrón, Spain, in the form of fibre and chemical compounds that indicate conifer wood. Associated dental wear confirms that the teeth were being used for non-dietary activities. These results highlight the importance of dental calculus as a source of wider biographical information, and demonstrate the need to include associated data within research, in particular tooth wear, to maximise this valuable resource.

Keywords: Spain | El Sidrón | Neanderthals | dental calculus | wood | conifer | microscopy | gas | chromatography | mass spectrometry

Warinner 2016

Christina Warinner et al., *Pathogens and host immunity in the ancient human oral cavity*. NatGen **46** (2016), 336–344.

NatGen46-0336-Supplement1.pdf, NatGen46-0336-Supplement2.zip

Christina Warinner, João F. Matias Rodrigues, Rounak Vyas, Christian Trachsel, Natallia Shved, Jonas Grossmann, Anita Radini, Y. Hancock, Raul Y. Tito, Sarah Fiddyment, Camilla Speller, Jessica Hendy, Sophy Charlton, Hans Ulrich Luder, Domingo C. Salazar-García10–, Elisabeth Eppler, Roger Seiler, Lars H. Hansen, José Alfredo Samaniego Castruita, Simon Barkow-Oesterreicher, Kai Yik Teoh, Christian D. Kelstrup, Jesper V. Olsen, Paolo Nanni, Toshihisa Kawai, Eske Willerslev, Christian von Mering, Cecil M. Lewis Jr, Matthew J. Collins, M. Thomas P. Gilbert, Frank Rühli & Enrico Cappellini

Calcified dental plaque (dental calculus) preserves for millennia and entraps biomolecules from all domains of life and viruses. We report the first, to our knowledge, high-resolution taxonomic and protein functional characterization of the ancient oral microbiome and demonstrate that the oral cavity has long served as a reservoir for bacteria implicated in both local and systemic disease. We characterize (i) the ancient oral microbiome in a diseased state, (ii) 40 opportunistic pathogens, (iii) ancient human–associated putative antibiotic resistance genes, (iv) a genome reconstruction of the periodontal pathogen Tannerella forsythia, (v) 239 bacterial and 43 human proteins, allowing confirmation of a long-term association between host immune factors, 'red complex' pathogens and periodontal disease, and (vi) DNA sequences matching dietary sources. Directly datable and nearly ubiquitous, dental calculus permits the simultaneous investigation of pathogen activity, host immunity and diet, thereby extending direct investigation of common diseases into the human evolutionary past.