PALEOPATHOLOGIE DENTAIRE :
QUAND LES DENTS NOUS ECLAIRENT SUR LE PASSE

Rémi ESCLASSAN

Laboratoire AMIS UMR 5288 CNRS, TOULOUSE

KAROLINSKA INSTITUTET, STOCKHOLM

Samedi 30 Mars 2019

« Mortuis Vivo Docent »

Rémi ESCLASSAN

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KAROLINSKA INSTITUTET, STOCKHOLM

Wednesday 20th March 2019

« VILLE ROSE »

Laboratoire AMIS-UMR 5288 CNRS


Karolinska Institutet Stockholm

ARCHIVES OF ORAL BIOLOGY 54 (2009) 287–297

available at www.sciencedirect.com

ScienceDirect

journal homepage: www.intl.elsevierhealth.com/journals/aob

Dental caries, tooth wear and diet in an adult medieval (12th–14th century) population from mediterranean France

R. Esclassan[a,b,d,*], A.M. Grimoud[a,b,d], M.P. Ruas[c], R. Donat[a], A. Sevin[a], F. Astie[a], S. Lucas[a,b,d], E. Crubezy[a]

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[c] CNRS, UMR 5059, Centre de Bio-Archéologie et d'Ecologie (CBAE), Institut de Botanique, 163 rue Auguste Broussonet, 34090 Montpellier, France
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Caries
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Diet
Archaeobotany
Middle Age

ABSTRACT

Objectives: The aims of the present work were to determine the frequency and distribution of caries and tooth wear on paired mandibular of a medieval sample from southwest France in which the sex of the remains had been established, and to make a relation with the diet of this population.

Materials and methods: The sample analyzed consisted of the dental remains of 58 adult individuals (29 men and 29 women) excavated from the medieval cemetery of the archaeological site of Villeneuve d'Aussonne (southwest France). A total of 1395 teeth were examined.

Results: The frequency of ante-mortem tooth loss for the sample was 8.7% and the frequency of caries was 17.5%. The frequencies of carious lesions in adult men's and women's dentition were 21.9% and 14.0%. The most frequent were occlusal (49.7% and 34.3%) and approximal caries (26.5% and 37.4%). Concerning tooth wear, all 58 individuals were affected by attrition (100%) and more than 90% of the teeth were concerned. Most of them showed the presence of dentin clusters. There was no significant difference between men and women for caries and tooth wear.

Discussion: These findings are similar to those of other studies on European populations of the same socio-economic status and confirm the predominance of tooth wear over carious lesions during this period. Both caries and tooth wear may be related to the regional diet of this rural population.

Anthropol. Anz. 72/2 (2015), pp. 185–199
J. Biol. Clinic. Anthropol.
published online 4 December 2014; published in print May 2015

Article

A panorama of tooth wear during the medieval period

Rémi Esclassan[1, 2], Djillali Hadjouis[3], Richard Donat[4], Olivier Passarrius[5], Delphine Maret[1, 2], Frédéric Vaysse[1, 2] and Eric Crubézy[2]

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remi.esclassan@univ-tlse3.fr

[2]Laboratoire AMIS UMR 5288 CNRS, Université Paul Sabatier, Toulouse, France

[3]Centre National de Recherches préhistoriques, anthropologiques et historiques, Alger, Algérie

[4]Institut National de Recherche en Archéologie Préventive (INRAP), France

[5]Pôle d'Archéologie, Perpignan, France

With 5 figures and 2 tables

Summary: Tooth wear is a natural phenomenon and a universal occurrence that has existed from the origin of humankind and depends on the way of life, especially diet. Tooth wear was very serious in ancient populations up to the medieval period. The aim of this paper is to present a global view of tooth wear in medieval times in Europe through different parameters: scoring systems, quantity and direction of wear, gender, differences between maxilla and mandible, relations with diet, caries, tooth malpositions and age.

Key words: tooth wear, Medieval, diet, gender.

A History of Caries in the Middle Ages: Characteristics and Cultural Profiles

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Faculté d'Odontologie de Montpellier, Montpellier

Anne-Marie Grimoud, PhD, DDS
Faculté de chirurgie dentaire de Toulouse, France

Richard Donat
Institut National de Recherche en Archéologie Préventive (INRAP), France

Aymat Catafau
Université de Perpignan, Perpignan, France.

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Laboratoire AMIS UMR 5288 CNRS Université Paul Sabatier, Toulouse Cedex, France

Rémi Esclassan PhD, DDS:
Laboratoire AMIS UMR 5288 CNRS, Faculté de chirurgie dentaire de Toulouse, Toulouse Cedex, France

In paleopathology, since the mid-1960s, caries and its characteristics have been studied on medieval teeth by many different teams in Europe, particularly in relation to the dietary and cultural habits of the populations concerned. The aims of this article are to propose a global study of caries within European medieval populations through various parameters such as prevalence, distribution, location, gender, and diet.

Formation I Anthropologie

1. Exemple de classification élaborée au début du XX^e siècle [4].

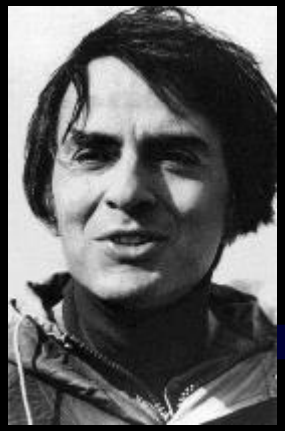
Proposition d'une nouvelle grille de classification *des altérations dentaires volontaires en anthropologie*

Mutilations soustractives

Pierre-Alain Canivet, Felix Molloumba, Rémi Esclassan

Pourquoi étudier les dents du passé?

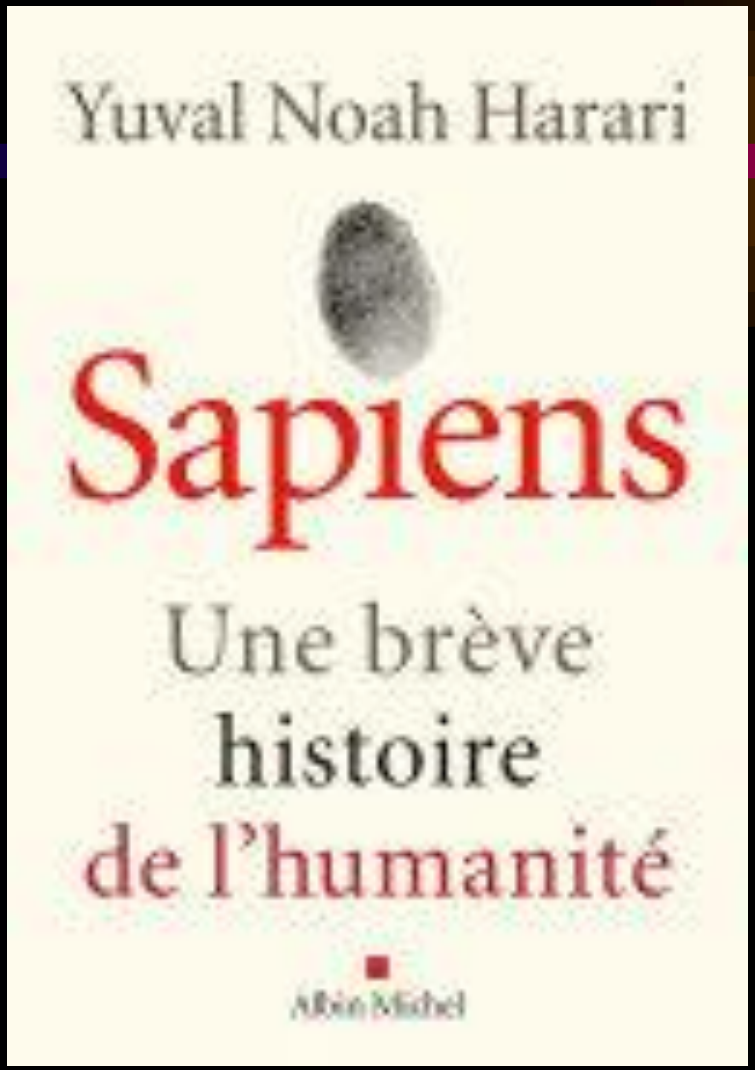
(Esclassan, 2009)

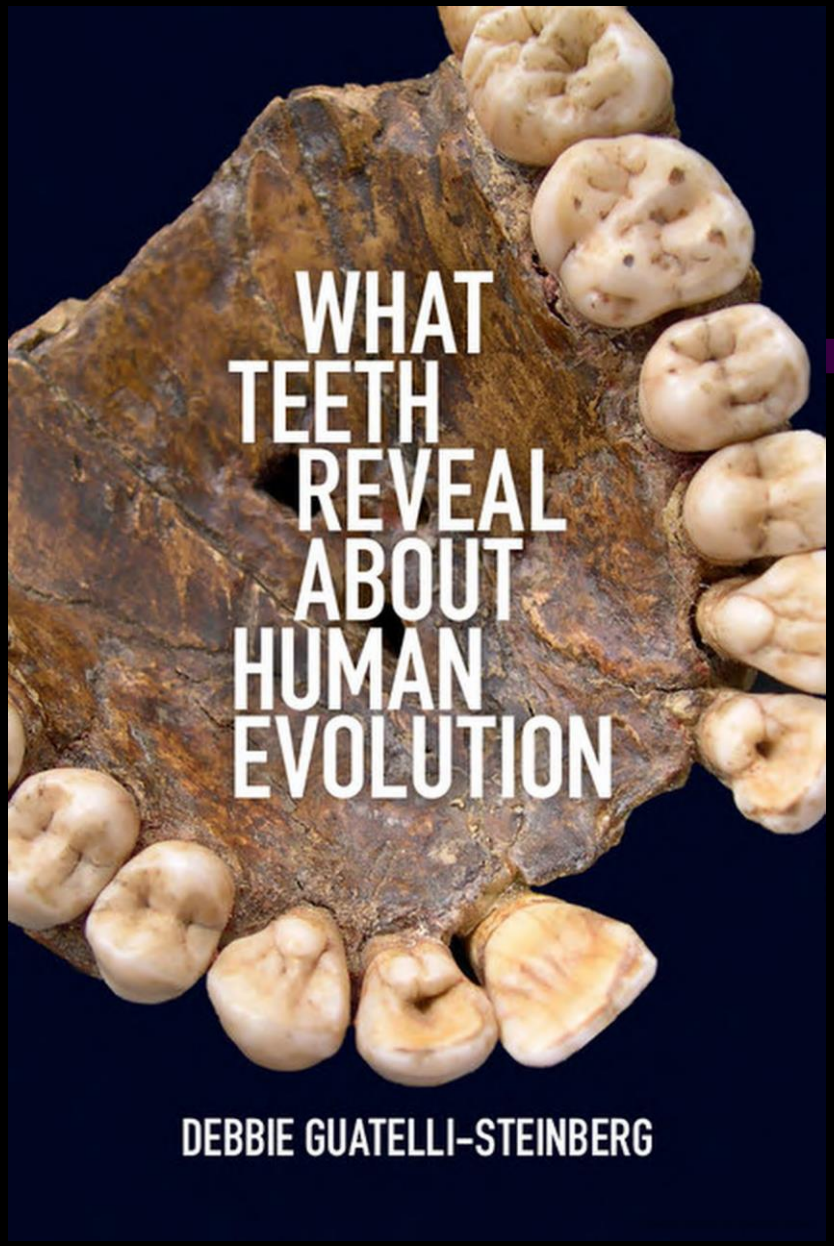


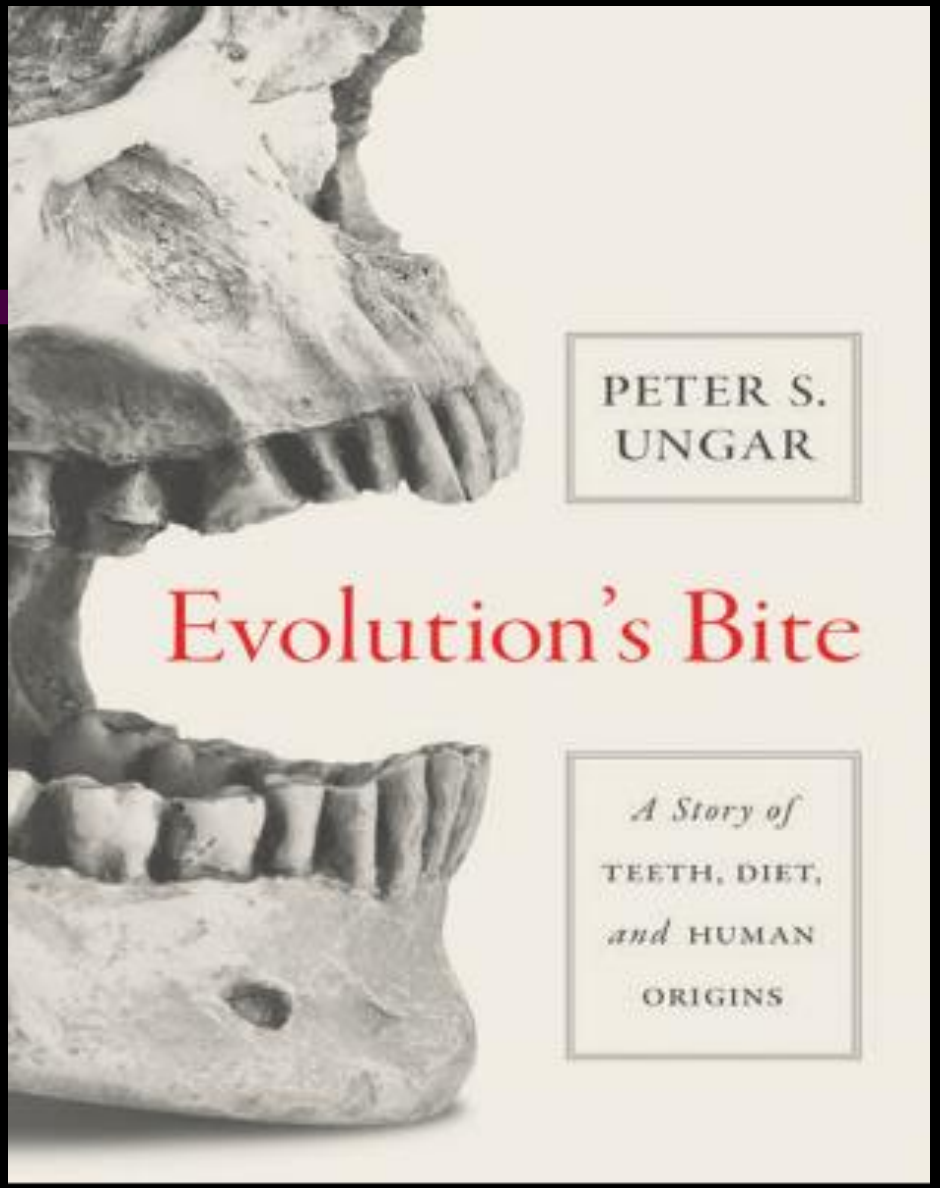
« *You have to know the Past to understand the Present* »
(Carl Sagan, 1934-1996)

« *La voie la plus courte pour l'avenir est toujours celle qui passe par l'approfondissement du passé* ».
(Aimé Césaire, 1913-2008)

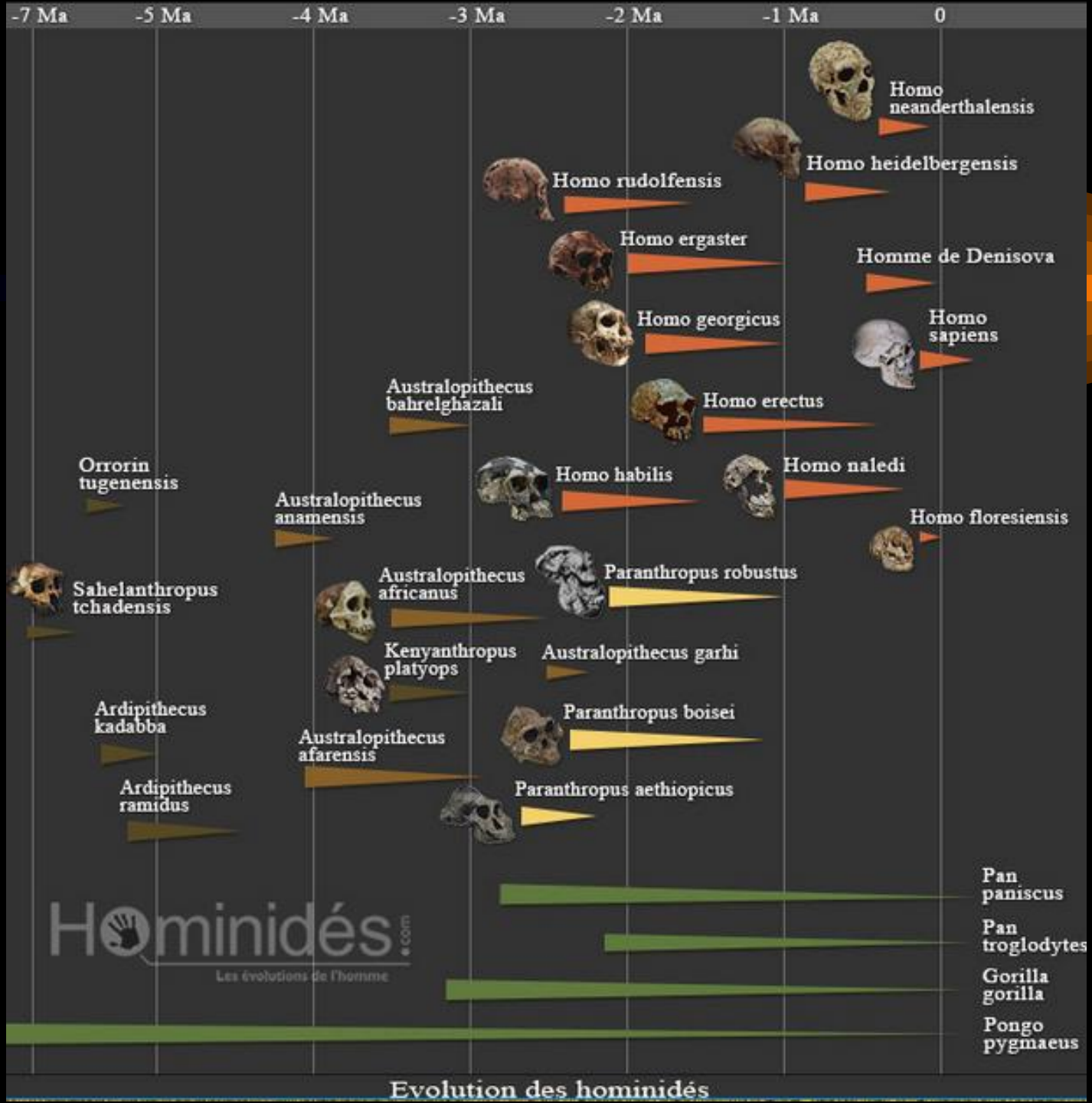
« *De tous les besoins de l'âme humaine, il n'y en a pas de plus vital que le passé* » ». (Simone Weil, 1909-1943)


Yuval Noah Harari
Sapiens
Une brève
histoire
de l'humanité
Albin Michel





"Teeth are our bridge to the past." (Peter Ungar, 2017)



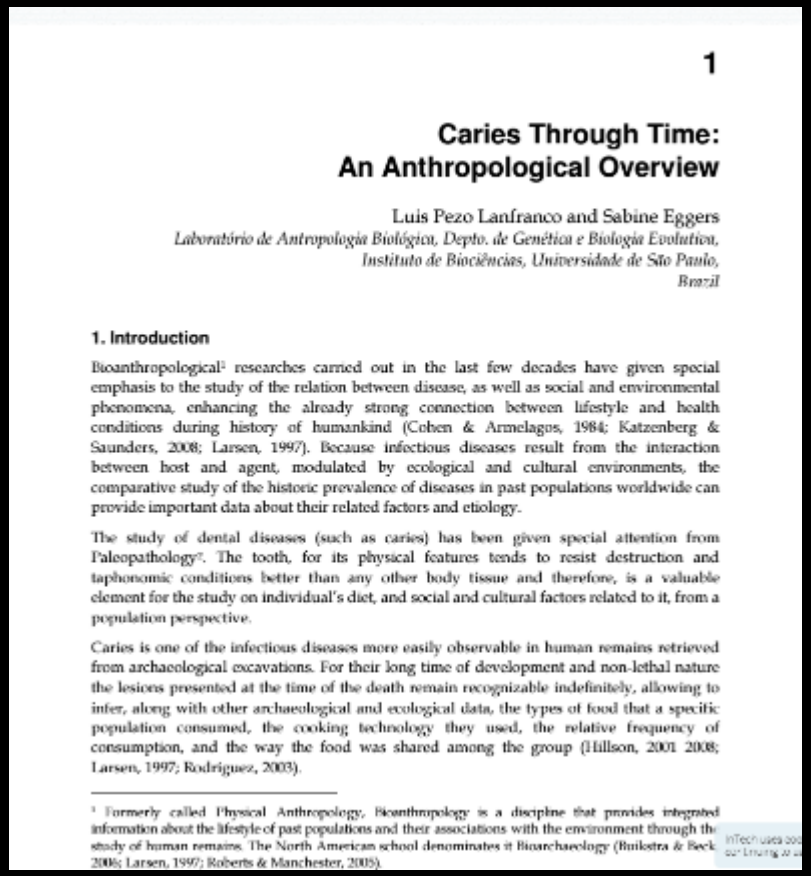
Hominidés.com (2018)

Que sait-on sur les caries dans le passé ?

(Esclassan, 2009)

(Esclassan, 2009)

« There is probably no disease whose incidence is known so accurately throughout the ages as dental caries… » (Hardwick, 1960).



1

Caries Through Time: An Anthropological Overview

Luis Pezo Lanfranco and Sabine Eggers
Laboratório de Antropologia Biológica, Depto. de Genética e Biologia Evolutiva, Instituto de Biociências, Universidade de São Paulo, Brazil

1. Introduction

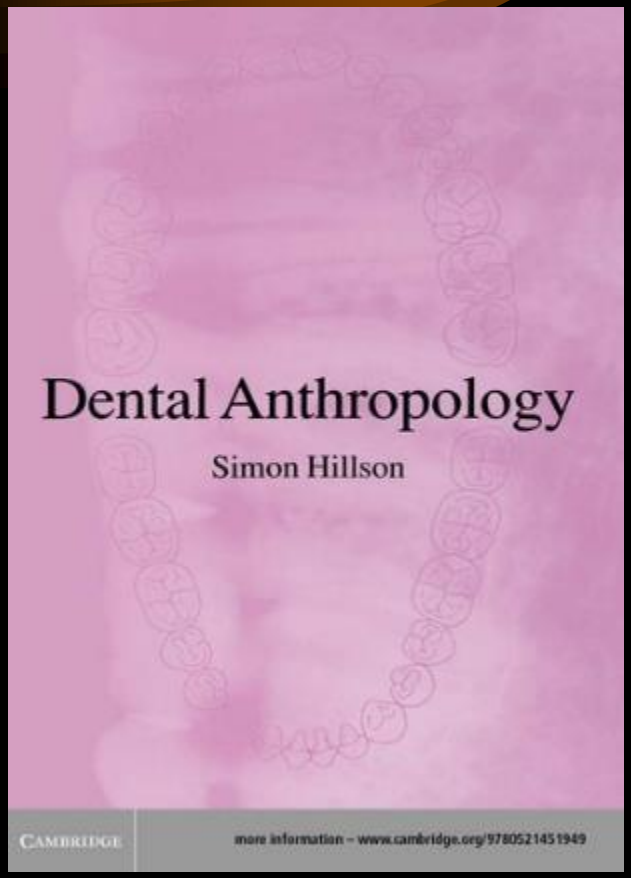
Bioanthropological[1] researches carried out in the last few decades have given special emphasis to the study of the relation between disease, as well as social and environmental phenomena, enhancing the already strong connection between lifestyle and health conditions during history of humankind (Cohen & Armelagos, 1984; Katzenberg & Saunders, 2008; Larsen, 1997). Because infectious diseases result from the interaction between host and agent, modulated by ecological and cultural environments, the comparative study of the historic prevalence of diseases in past populations worldwide can provide important data about their related factors and etiology.

The study of dental diseases (such as caries) has been given special attention from Paleopathology[2]. The tooth, for its physical features tends to resist destruction and taphonomic conditions better than any other body tissue and therefore, is a valuable element for the study on individual's diet, and social and cultural factors related to it, from a population perspective.

Caries is one of the infectious diseases more easily observable in human remains retrieved from archaeological excavations. For their long time of development and non-lethal nature the lesions presented at the time of the death remain recognizable indefinitely, allowing to infer, along with other archaeological and ecological data, the types of food that a specific population consumed, the cooking technology they used, the relative frequency of consumption, and the way the food was shared among the group (Hillson, 2001 2008; Larsen, 1997; Rodríguez, 2003).

[1] Formerly called Physical Anthropology, Bioanthropology is a discipline that provides integrated information about the lifestyle of past populations and their associations with the environment through the study of human remains. The North American school denominates it Bioarchaeology (Buikstra & Beck 2006; Larsen, 1997; Roberts & Manchester, 2005).

(LaFranco LP, 2012)



(Hillson S, 2008)

Une exception : L'Homme de Broken Hill (BH1) !!

(Lafranco et al, 2012)

International Journal of Paleopathology 7 (2014) 57–63

Contents lists available at ScienceDirect

International Journal of Paleopathology

journal homepage: www.elsevier.com/locate/ijpp

Case Study

The oral pathological conditions of the Broken Hill (Kabwe) 1 cranium

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Hypercementosis
Middle Pleistocene
Archaic *Homo sapiens*

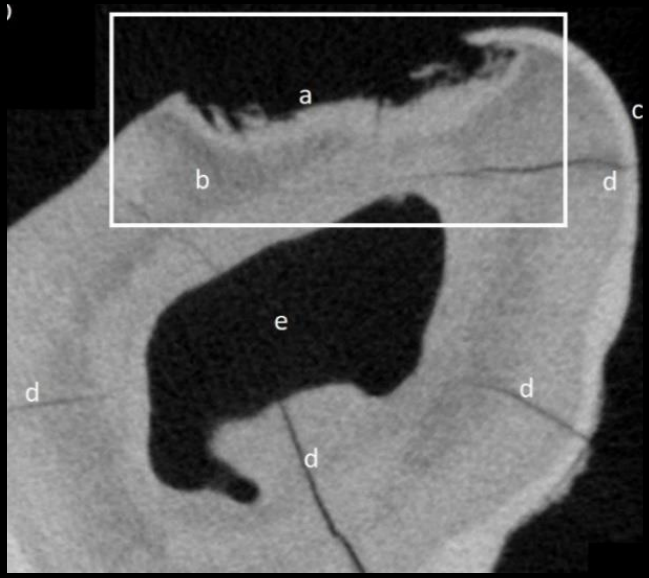
ABSTRACT

The Broken Hill (Kabwe) 1 cranium exhibits dental caries on ten teeth, multiple periapical lesions, periodontal disease, severe anterior dental wear, and hypercementosis, conditions all little-studied in Middle Pleistocene humans and making Broken Hill 1 of great value to discussions of the antiquity of oral pathological conditions. These individual pathological conditions, however, have never previously been described in detail; the focus has been on diagnosing an overarching syndrome connecting the temporal and oral lesions. This case study examines the individual dentoalveolar pathological conditions to provide data for cross-comparison using ordinal scores (e.g., carious lesions, interdental septum condition), descriptions (e.g., hypercementosis, periapical lesions), and continuous measurements (cemento-enamel junction to alveolar crest distances). Differential diagnoses are explored including age-related hyposalivation, dental wear, lead poisoning, and diet, and are discussed within the context of past published attempts. Studies on recent humans have demonstrated correlations between oral disease, systemic health, and diet, suggesting Broken Hill 1 likely suffered from larger systemic inflammation related to its age, health, and perhaps subsistence.

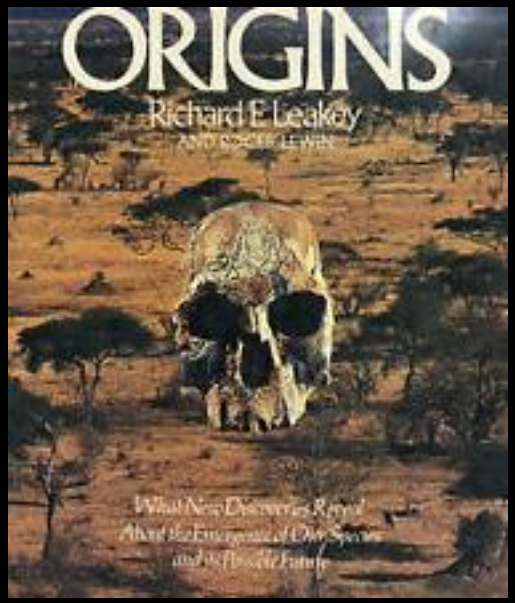
(Lacy, 2014)

(Lacy, 2014)

Paranthropus robustus, 1,5-2M Années



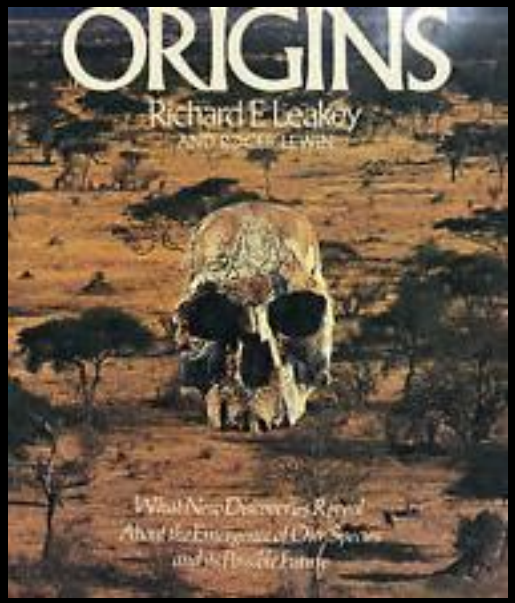
(Towle et al, 2019)



Nariokotome Boy
(Science, 2007, A. Gibbons)

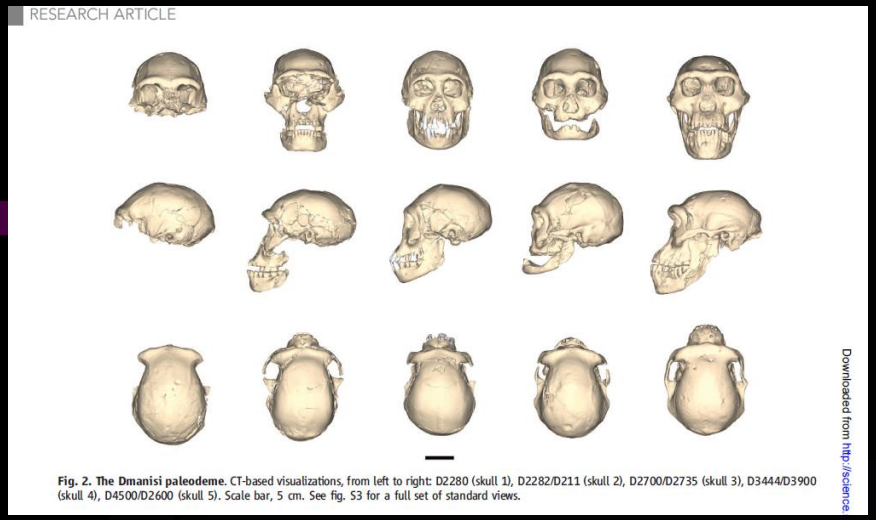
1,6 M y.o Homo ergaster

(https://gallery.autodesk.com/projects/knmwt-15000-mandible)



(https://gallery.autodesk.com/projects/knmwt-15000-mandible)

D3444 (Dmanisi, Georgia)



(Lordkipanitze D. et al, Nature, 2005)
(Lordkipanitze D. et al, Science, 2013)

European Journal of Oral Sciences

Eur J Oral Sci 2013; 121: 137–141
DOI: 10.1111/eos.12037
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European Journal of Oral Sciences

Focus

Oral pathologies of the Neolithic Iceman, *c.*3,300 BC

Roger Seiler[1], Andrew I Spielman[2], Albert Zink[3], Frank Rühli[1]

[1]Centre for Evolutionary Medicine, Institute of Anatomy, University of Zurich, Zürich, Switzerland; [2]New York University College of Dentistry, New York, NY, USA; [3]Institute for Mummies and the Iceman, EURAC, Bolzano, Italy

Seiler R, Spielman AI, Zink A, Rühli F. Oral pathologies of the Neolithic Iceman, c.3,300 BC.
Eur J Oral Sci 2013; 121: 137–141. © 2013 Eur J Oral Sci

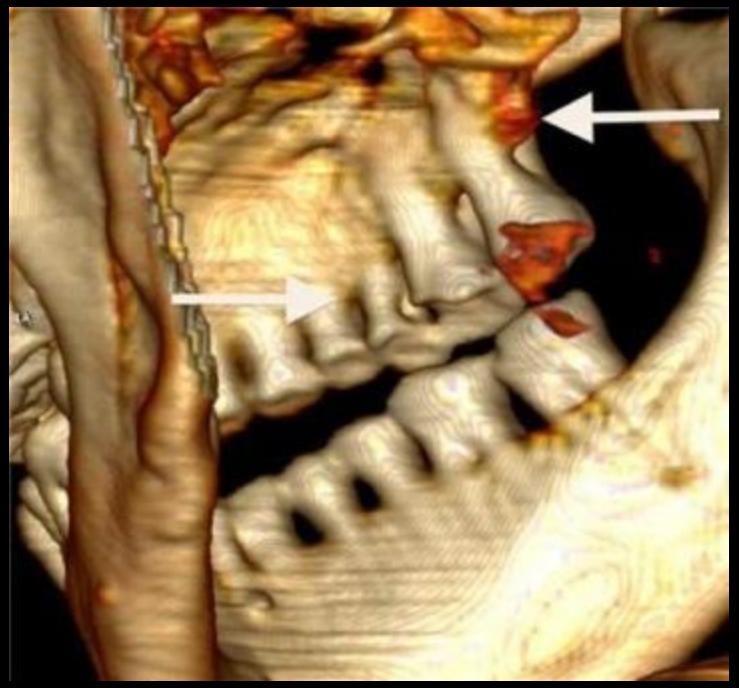
The famous human 'Ötzi' (South Tyrol Museum of Archaeology, Bolzano, Italy), a Neolithic human ice mummy, offers a unique opportunity to study evolutionary aspects of oral disease. The aim of this study was to assess, for the very first time, his oral cavity, which surprisingly had never been examined systematically. Based on several computed tomography (CT) scans from 1991 onwards and on macroscopic investigation, only a few findings, such as a central maxillary diastema, heavy abrasions, and missing wisdom teeth, were known. We re-evaluated the latest CT scans from 2005 and found various oral pathologies. In line with the increase of tooth decay in the Neolithic – because of diet change in this historic transition phase – several carious lesions were found, one of which penetrated into the dental pulp. In accordance with the Iceman's troubled life, as several injuries on his body and his violent death attest, mechanical trauma of one of his upper front teeth is evident. Finally, the poor periodontal condition of the Iceman's dentition (e.g. loss of alveolar bone), indicative of periodontitis, was assessed. These oral pathological findings in the Iceman's dentition provides a unique glimpse into the evolutionary history of oral conditions.

Prof. Dr Dr med. Frank Rühli, Centre for Evolutionary Medicine, Institute of Anatomy, University of Zurich, Winterthurerstr. 190, 8057 Zürich, Switzerland

E-mail: frank.ruehli@anatom.uzh.ch

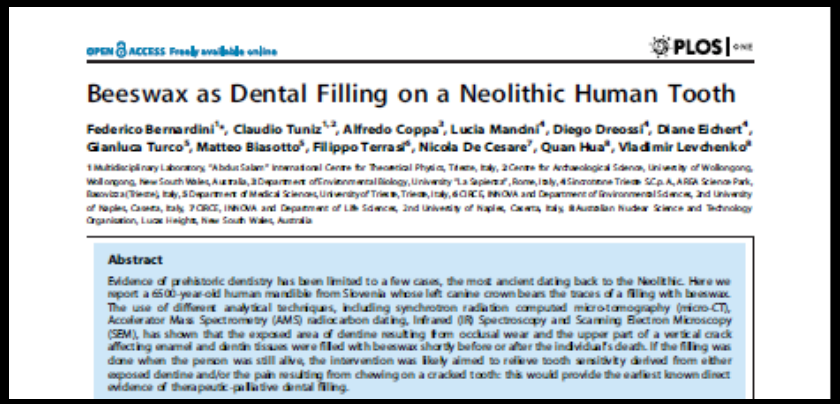
Key words: caries; mummy; paleopathology; periodontitis; prehistory

Accepted for publication January 2013



(onlinelibrary.wiley.com (abstract))

Quelles traces de soins dentaires ?



OPEN ACCESS Freely available online PLOS ONE

Beeswax as Dental Filling on a Neolithic Human Tooth

Federico Bernardini[1]*, Claudio Tuniz[1,2], Alfredo Coppa[3], Lucia Mandini[4], Diego Dreossi[4], Diane Eichert[4], Gianluca Turco[5], Matteo Biasotto[5], Filippo Terrasi[6], Nicola De Cesare[7], Quan Hua[8], Vladimir Levchenko[8]

1 Multidisciplinary Laboratory, "Abdus Salam" International Centre for Theoretical Physics, Trieste, Italy, 2 Centre for Archaeological Science, University of Wollongong, Wollongong, New South Wales, Australia, 3 Department of Environmental Biology, University "La Sapienza", Rome, Italy, 4 Sincrotrone Trieste SCp.A., AREA Science Park, Basovizza (Trieste), Italy, 5 Department of Medical Sciences, University of Trieste, Trieste, Italy, 6 CIRCE, INNOVA and Department of Environmental Sciences, 2nd University of Naples, Caserta, Italy, 7 CIRCE, INNOVA and Department of Life Sciences, 2nd University of Naples, Caserta, Italy, 8 Australian Nuclear Science and Technology Organisation, Lucas Heights, New South Wales, Australia

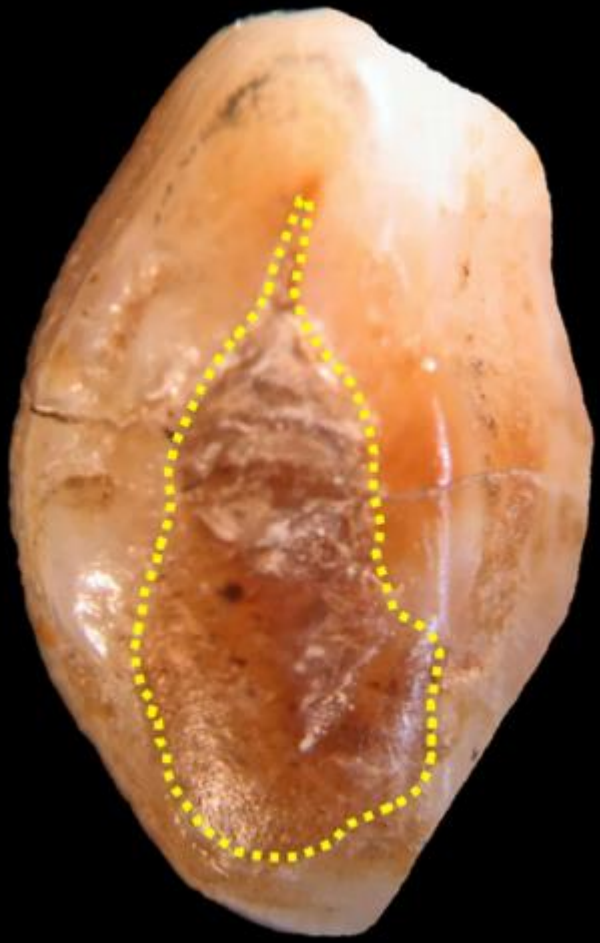
Abstract

Evidence of prehistoric dentistry has been limited to a few cases, the most ancient dating back to the Neolithic. Here we report a 6500-year-old human mandible from Slovenia whose left canine crown bears the traces of a filling with beeswax. The use of different analytical techniques, including synchrotron radiation computed micro-tomography (micro-CT), Accelerator Mass Spectrometry (AMS) radiocarbon dating, Infrared (IR) Spectroscopy and Scanning Electron Microscopy (SEM), has shown that the exposed area of dentine resulting from occlusal wear and the upper part of a vertical crack affecting enamel and dentin tissues were filled with beeswax shortly before or after the individual's death. If the filling was done when the person was still alive, the intervention was likely aimed to relieve tooth sensitivity derived from either exposed dentine and/or the pain resulting from chewing on a cracked tooth: this would provide the earliest known direct evidence of therapeutic-palliative dental filling.

(Bernardini 2012)

Mandibule de 6500 ans !

Traces d'obturation …
à la cire d'abeille sur la 33 !



(Bernardini, 2012)

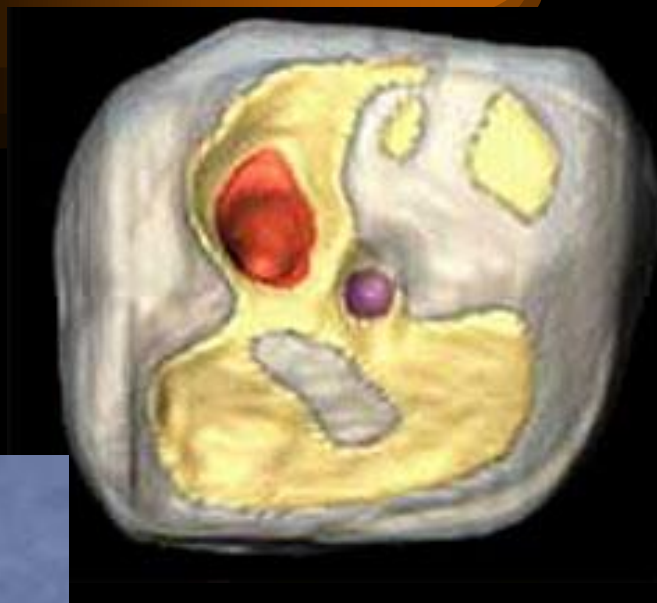
https://www.livescience.com/23321-ancient-dentistry-beeswax-filling.html

Vol 440|6 April 2006 nature

BRIEF COMMUNICATIONS

Early Neolithic tradition of dentistry

Flint tips were surprisingly effective for drilling tooth enamel in a prehistoric population.



(Coppa, Macchiarelli et al, 2006)

www.nature.com/scientificreports

SCIENTIFIC REPORTS

OPEN

Earliest evidence of dental caries manipulation in the Late Upper Palaeolithic

Received: 10 March 2015
Accepted: 17 June 2015
Published: 16 July 2015

Gregorio Oxilia[1,2,3], Marco Peresani[3], Matteo Romandini[3], Chiara Matteucci[3], Cynthianne Debono Spiteri[4,5], Amanda G. Henry[4,6], Dieter Schulz[7], Will Archer[8], Jacopo Crezzini[9,3], Francesco Boschin[9,3], Paolo Boscato[9], Klervia Jaouen[6], Tamara Dogandžić[6], Alberto Broglio[3], Jacopo Moggi-Cecchi[1], Luca Fiorenza[10,11], Jean-Jacques Hublin[6], Ottmar Kullmer[12] & Stefano Benazzi[13,6]

Benazzi, 2015

PERGAMON

Archives of Oral Biology 46 (2001) 285–292

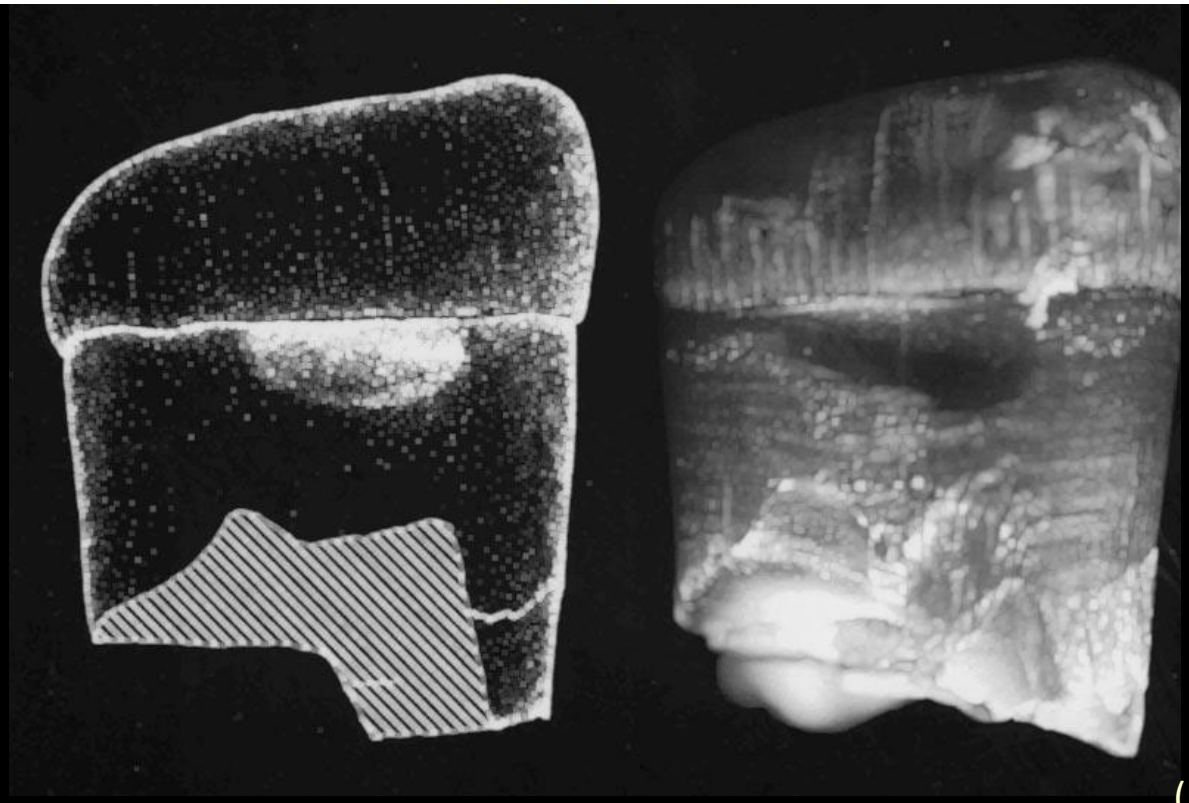
Archives of Oral Biology

www.elsevier.com/locate/archoralbio

Review

A review of interproximal wear grooves on fossil hominin teeth with new evidence from Olduvai Gorge

Peter S. Ungar [a,*], Frederick E. Grine [b], Mark F. Teaford [c], Alejandro Pérez-Pérez [d]



(Ungar, 2001)

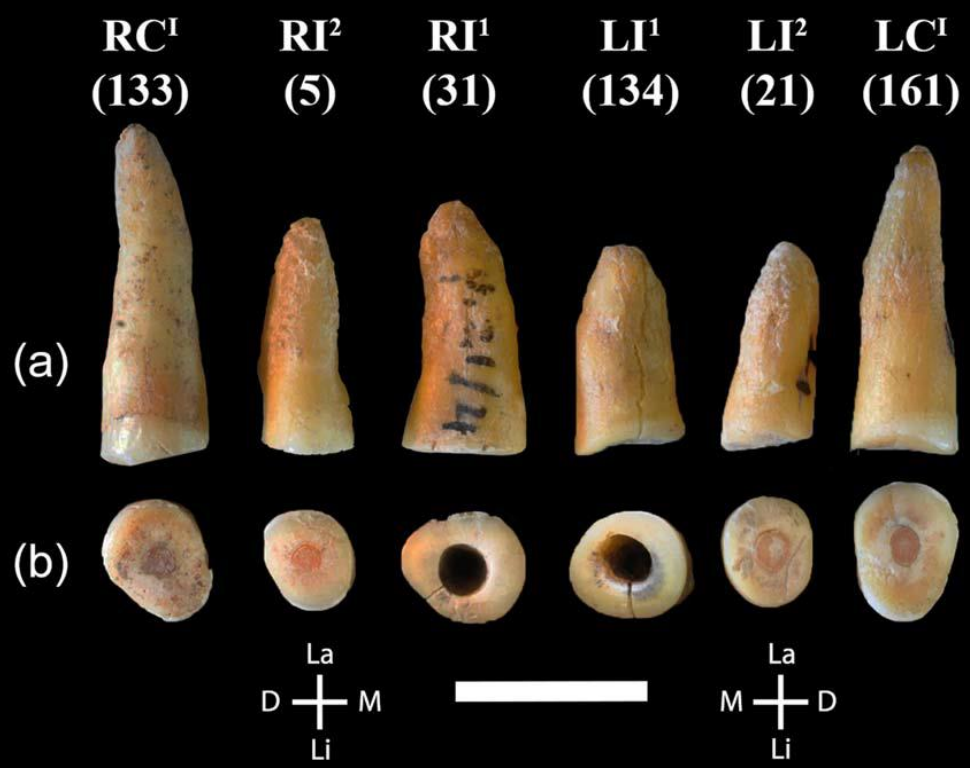
Traitement « radiculaire » le plus ancien ? (13 000 BP) ?

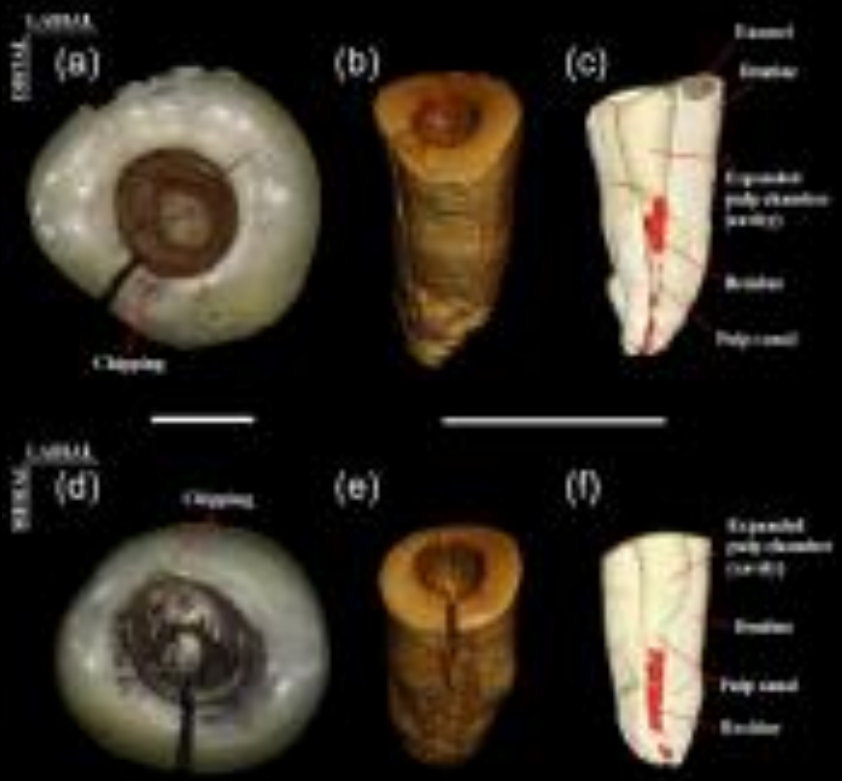
Received: 23 October 2016 | Revised: 10 March 2017 | Accepted: 10 March 2017
DOI: 10.1002/ajpa.23216

RESEARCH ARTICLE

WILEY
American Journal of PHYSICAL ANTHROPOLOGY

The dawn of dentistry in the late upper Paleolithic: An early case of pathological intervention at Riparo Fredian

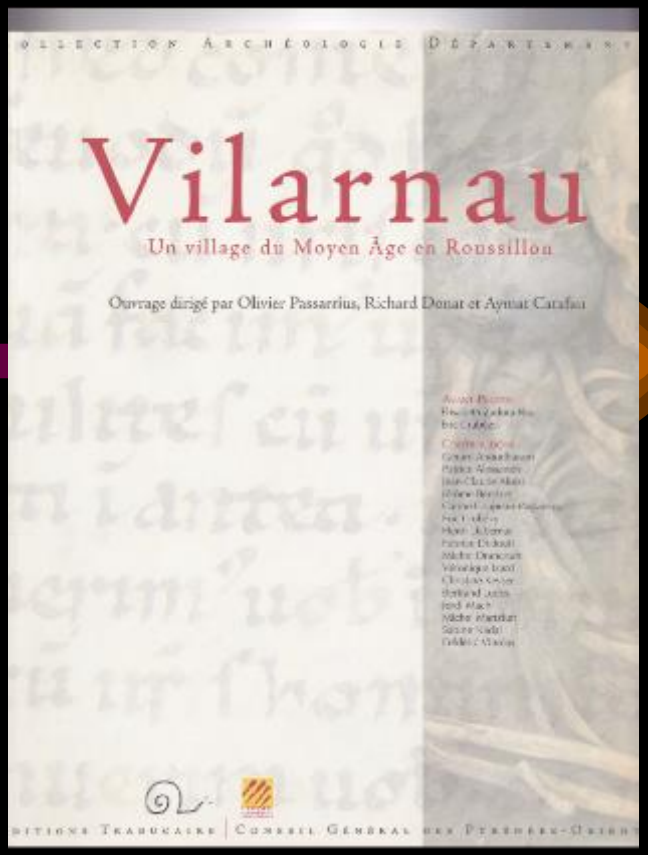




(Oxillia et al, 2017)

Avons-nous des « clichés » sur les dents au Moyen-Âge ?

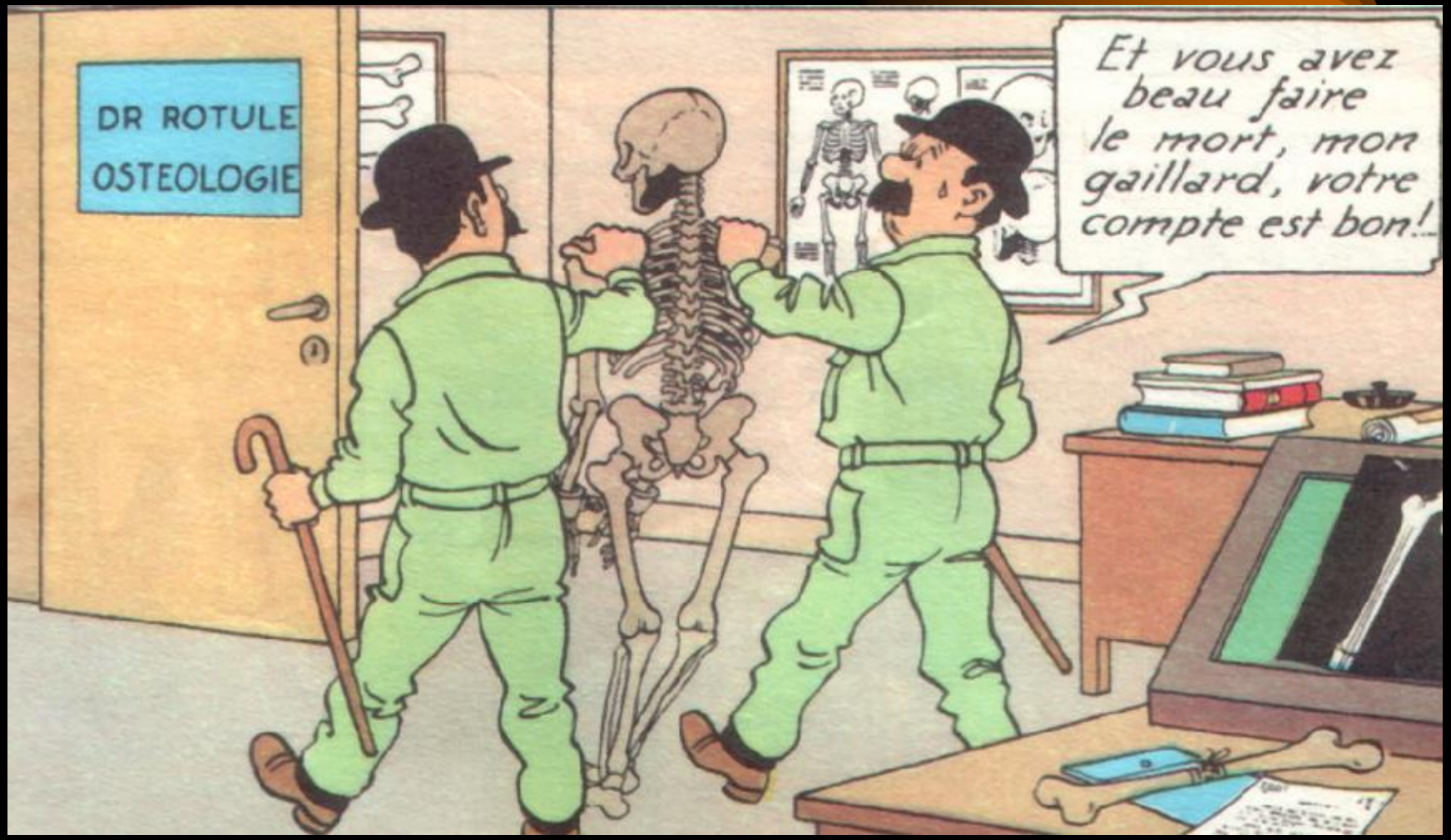
« Les visiteurs », JM



(Passarrius, Donat, Catafau, 2008)

https://pierrickauger.wordpress.com

Matériel et Méthode



(in Hergé, Objectif lune, 1953)

Matériels : échantillons étudiés

(Esclassan, 2009)

(Esclassan, 2009)

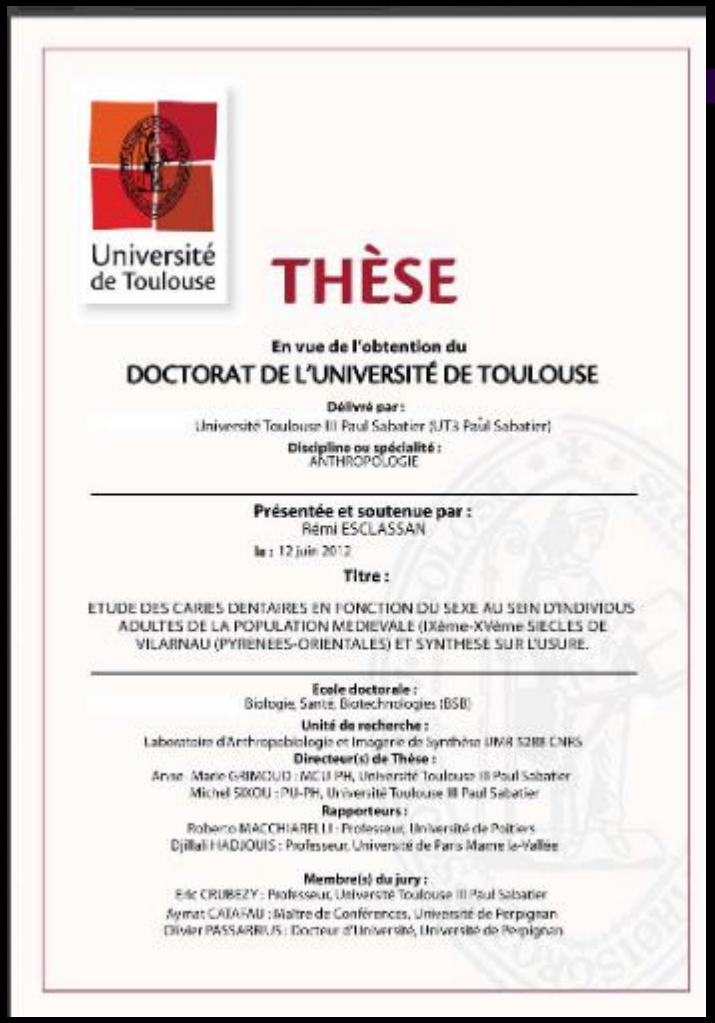
Les localisations carieuses







(Esclassan, 2009)



Université de Toulouse

THÈSE

En vue de l'obtention du

DOCTORAT DE L'UNIVERSITÉ DE TOULOUSE

Délivré par :
Université Toulouse III Paul Sabatier (UT3 Paul Sabatier)

Discipline ou spécialité :
ANTHROPOLOGIE

Présentée et soutenue par :
Rémi ESCLASSAN
le : 12 juin 2012

Titre :

ETUDE DES CARIES DENTAIRES EN FONCTION DU SEXE AU SEIN D'INDIVIDUS ADULTES DE LA POPULATION MEDIEVALE (IXème-XVème SIECLES DE VILARNAU (PYRENEES-ORIENTALES) ET SYNTHESE SUR L'USURE.

Ecole doctorale :
Biologie, Santé, Biotechnologies (BSB)

Unité de recherche :
Laboratoire d'Anthropobiologie et Imagerie de Synthèse UMR 5288 CNRS

Directeur(s) de Thèse :
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Michel SIXOU : PU-PH, Université Toulouse III Paul Sabatier

Rapporteurs :
Roberto MACCHIARELLI : Professeur, Université de Poitiers
Djillali HADJOUIS : Professeur, Université de Paris Marne-la-Vallée

Membre(s) du jury :
Eric CRUBEZY : Professeur, Université Toulouse III Paul Sabatier
Aymat CATAFAU : Maître de Conférences, Université de Perpignan
Olivier PASSARRIUS : Docteur d'Université, Université de Perpignan

Effectif	Nombre de dents maxillaires	Nombre de dents mandibulaires	Total
Hommes (n=153)	1192	1334	2526
Femmes (n=119)	876	1035	1911
Total (n=272)	2068	2369	4437

	n(1)	n(2)	%(3)	p(4)
Localisations maxillaire et mandibulaire				**0.003***
Dents maxillaires	2068	334	16.2	
Dents mandibulaires	2369	308	13.0	
Total	4437	642	14.5	

(1) : nombre de dents

(2) : nombre de caries

(3) : pourcentage de caries

(4) : test de Fisher exact (différence des caries maxillaires *vs* les caries mandibulaires)

Localisations carieuses

- Caries occlusales et proximales les plus fréquentes.

- Confirmation des données de la littérature (Hillson, 2001 ; Wasterlain, 2009 ; Lalosa, 2012).

- Avec l'âge, diminution du pourcentage des caries sur les faces occlusales et augmentation sur les faces proximales.

- Compétition « usure-caries » (Maat et van der Velde, 1987)

(Esclassan, 2009)

- Usure importante des dents

- Éruption compensatrice

(Murphy 1959, Berry 1976, Levers 1983, Whittaker 1983)

- Exposition croissante de la jonction amélo-cémentaire et des racines : ouverture des espaces interdentaires, accumulation d'aliments et apparition des caries.

(Esclassan, 2009)

A Vilarnau : **plus de caries chez les Hommes ou les Femmes ?**

- Plus de caries habituellement chez les femmes dans la littérature.

- Rôle dans la préparation de la nourriture + goûter les plats
(Kelley, 1991 ; Larsen, 1995).

- Rôle de la grossesse et des modifications hormonales subies tout au long de la vie
(Lukacs, 2006 ; 2008 ; 2010)

Clin Oral Invest (2011) 15:649–656
DOI 10.1007/s00784-010-0445-3

ORIGINAL ARTICLE

Sex differences in dental caries experience: clinical evidence, complex etiology

John R. Lukacs

significant aspect of the genetic studies is that the sex difference in caries experience may be caused by: (a) variation in the quality of tooth enamel (genes controlling enamel formation), (b) variation in oral ecology (saliva flow and composition), (c) variation in dietary preferences (olfaction and gustatory senses), and (d) variation in the pathogenic micro-organisms of the oral cavity. Clinical and epidemiolog-

Archives of Oral Biology 73 (2017) 7–15

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Review

Meta-analysis of teeth from European populations before and after the 18th century reveals a shift towards increased prevalence of caries and tooth loss

Antonia Müller[a,b], Kais Hussein[a,*]

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[b] Dental Care Center, German Federal Armed Forces Hospital Ulm (Bundeswehrkrankenhaus Ulm, Abteilung VII A), Oberer Eselsberg 40, 89081 Ulm, Germany

Meta-analyses revealed that, over several hundred years, including the post-18th century era, Europeans had relatively constant frequencies of caries and ante-mortem tooth loss, but since the 18th century, the mean frequencies of these dental diseases increased (each $p < 0.05$). Tooth loss correlated with caries and odontogenic abscesses (each $p < 0.05$). Although the mean caries and ante-mortem tooth loss frequencies increased since the 18th century, there are overlaps with many pre-18th century cohorts. In addition, in contrast to previous hypotheses, no general increase of caries prevalence in females could in fact be verified.

À Vilarnau ?

	n[1]	n[2]	%[3]	p[4]
Sexe				0.196
Hommes	2526	381	15.08	
Femmes	1911	261	13.65	

Comment expliquer cette différence entre hommes et femmes à Vilarnau?

- Vilarnau : A l'encontre de la littérature (Lukacs, 2006, 2008, 2010 ; Wittwer-Backoffen, 2009 ; Ferraro, 2010 ; Roberts, 2010) : Les hommes ont une prévalence carieuse supérieure.

- Prises alimentaires plus nombreuses dans la journée ? (Laurioux, 2002)

- Accès préférentiel des hommes à une nourriture plus cariogène (Pietrusewsky, 2002) ?

- Hygiène bucco-dentaire moins soutenue chez les hommes au moyen-âge?

«… avoir les dents blanches est une affaire de coquetterie pour les femmes »… (Erasme, 1530)

Quelle alimentation carieuse à Vilarnau ?

- Pain (+++), céréales, fruits.

- Pour les paysans : pain noir (farine de seigle, autres céréales, châtaignes, féverole, pois…) (Marinval, 2008)

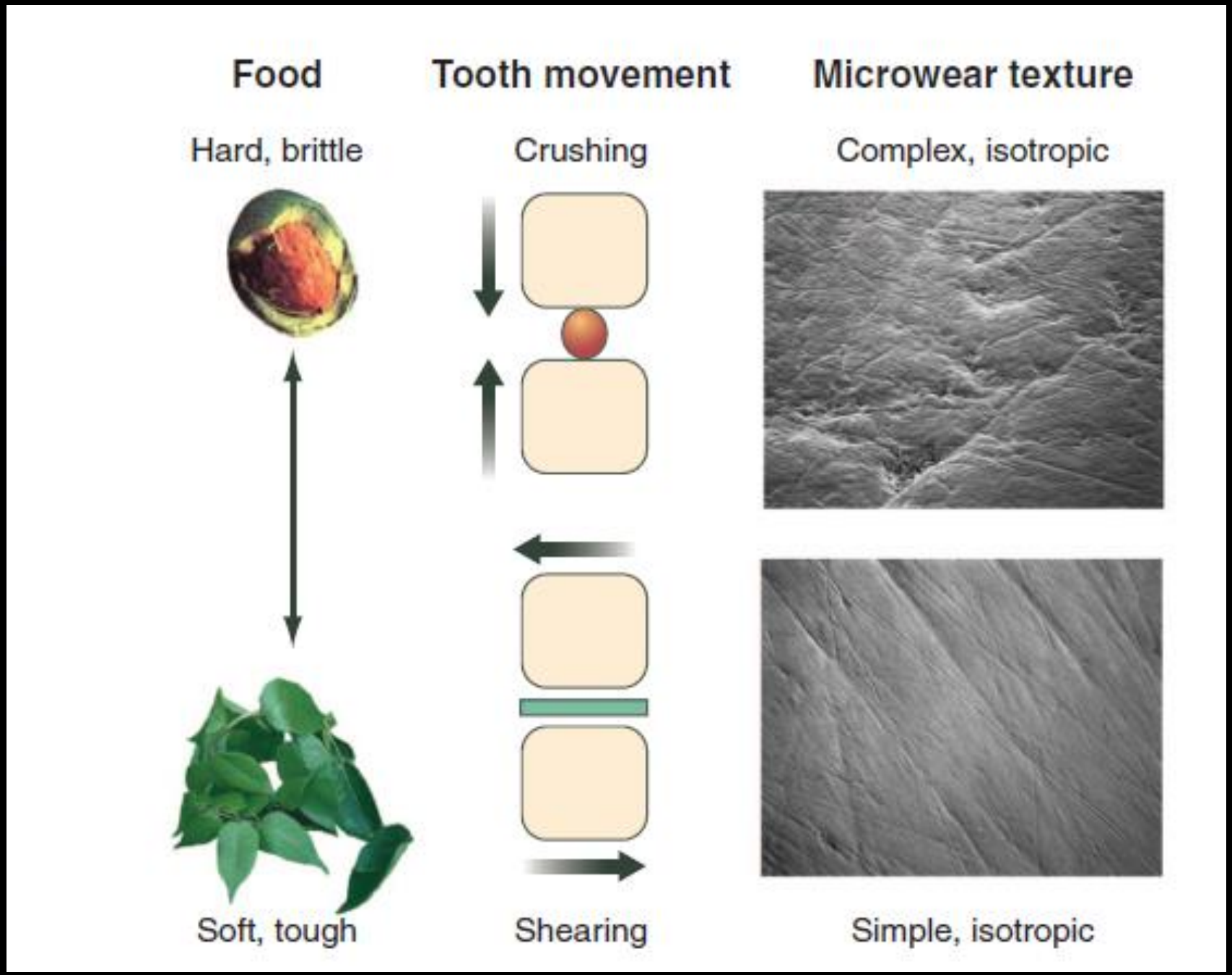
- « Bouillies » à base de gruau d'avoine (Laurioux, 2002)

From « A quoi ressemblait le pain au Moyen-Age ? Forme et goût »
https://www.anecdotes-historiques.com

Usure et micro-usure dentaire

(Esclassan, 2009)

(Ungar, 2011)


Food
Tooth movement
Microwear texture
Hard, brittle
Crushing
Complex, isotropic
Soft, tough
Shearing
Simple, isotropic

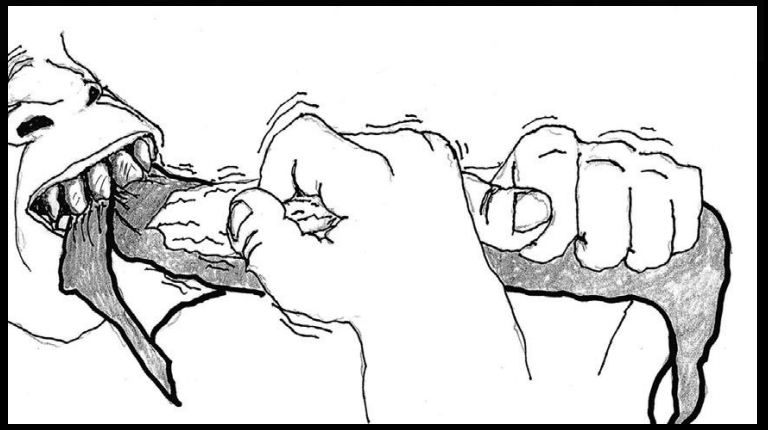
(Ungar, 2011)

I) A la Préhistoire

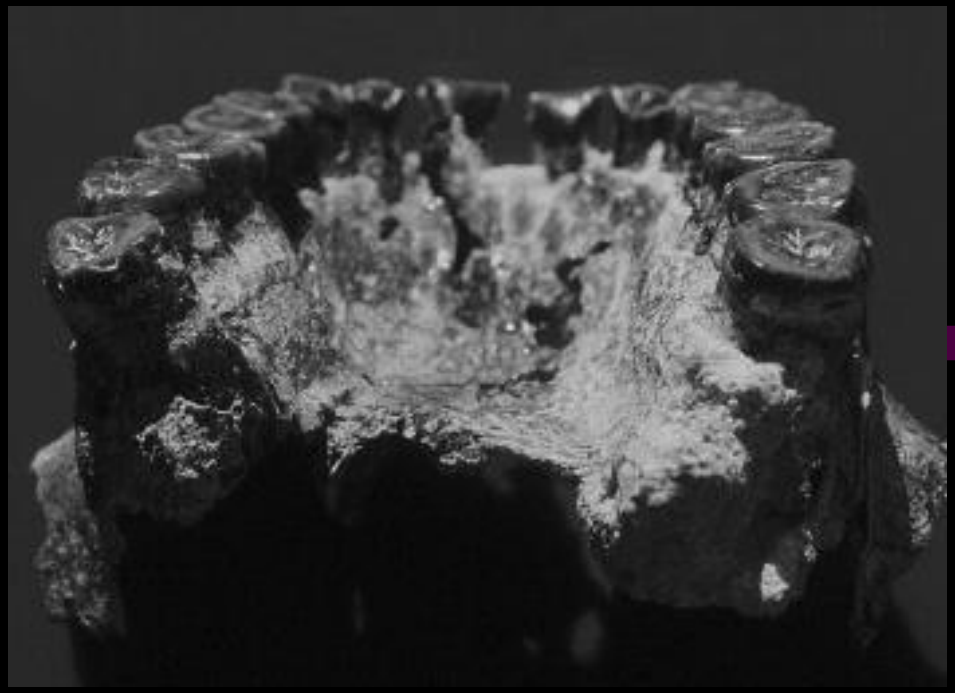
- OH 65 : 2-1,8M d'années

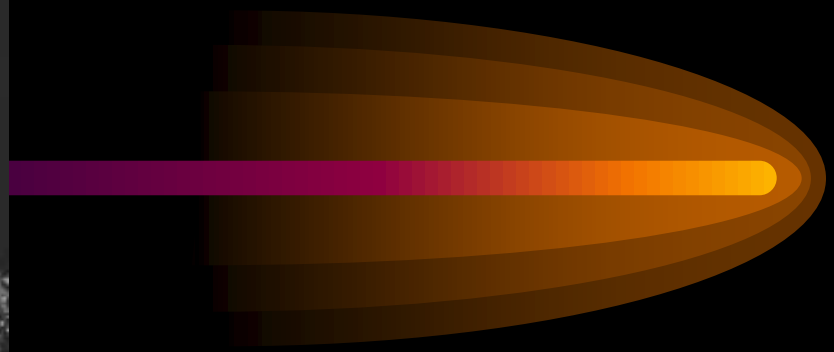
(Blumenschine R.J. et al. (2003)).

https://olduvai-paleo.org/specimen/oh-65/



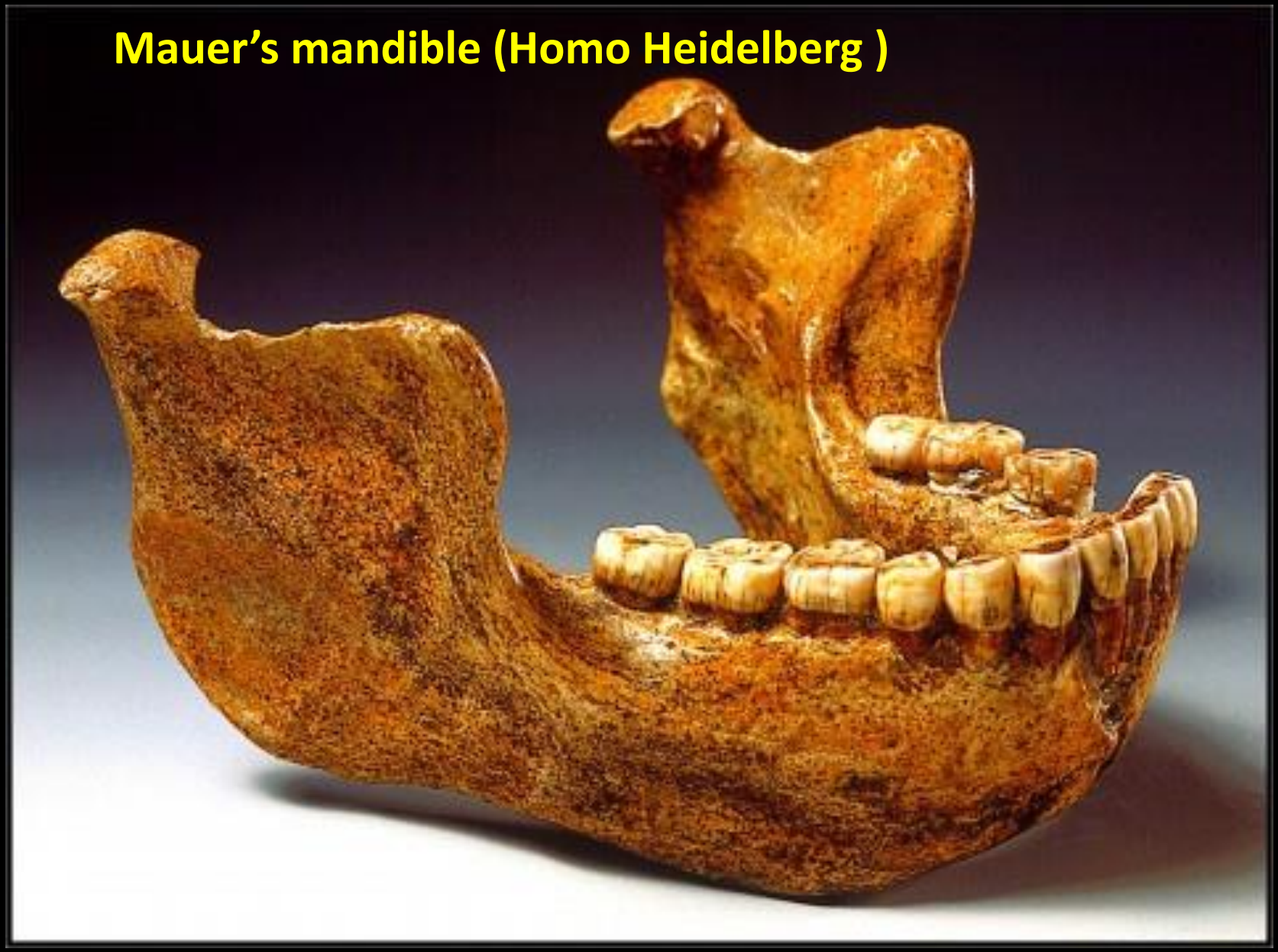
(Frayer, 2016)





(https://olduvai-paleo.org/specimen/oh-65/)

Mauer’s mandible (Homo Heidelberg)



(https://www.gesundheitsindustrie-bw.de)

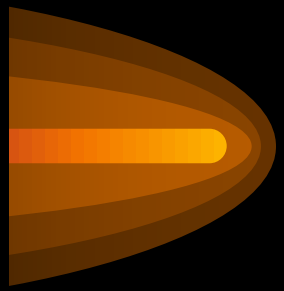
RESEARCH ARTICLE

A Complete Skull from Dmanisi, Georgia, and the Evolutionary Biology of Early *Homo*

plane a nearly vertical orientation, whereas the nuchal plane is only moderately inclined (21°) relative to the Frankfurt horizontal (FH) plane. The occipital transverse torus is ruggedly built, and the nuchal region is deeply sculpted. A bi-laminar crest linking inion with opisthion suggests a strong nuchal ligament. The mastoid processes are large and steeply inclined medially. Their in-ferior portion is compressed mediolaterally to form a distinctive flange-like structure that ex-

(Martin Francès et al, CR Palevol, 2014)

(Lordkipanidze et al, Science 2013)



Homme de Dmanisi (Georgia),
(Martin Francès et al, CR Palevol, 2014)

Usure dentaire médiévale : Vilarnau d'Amont

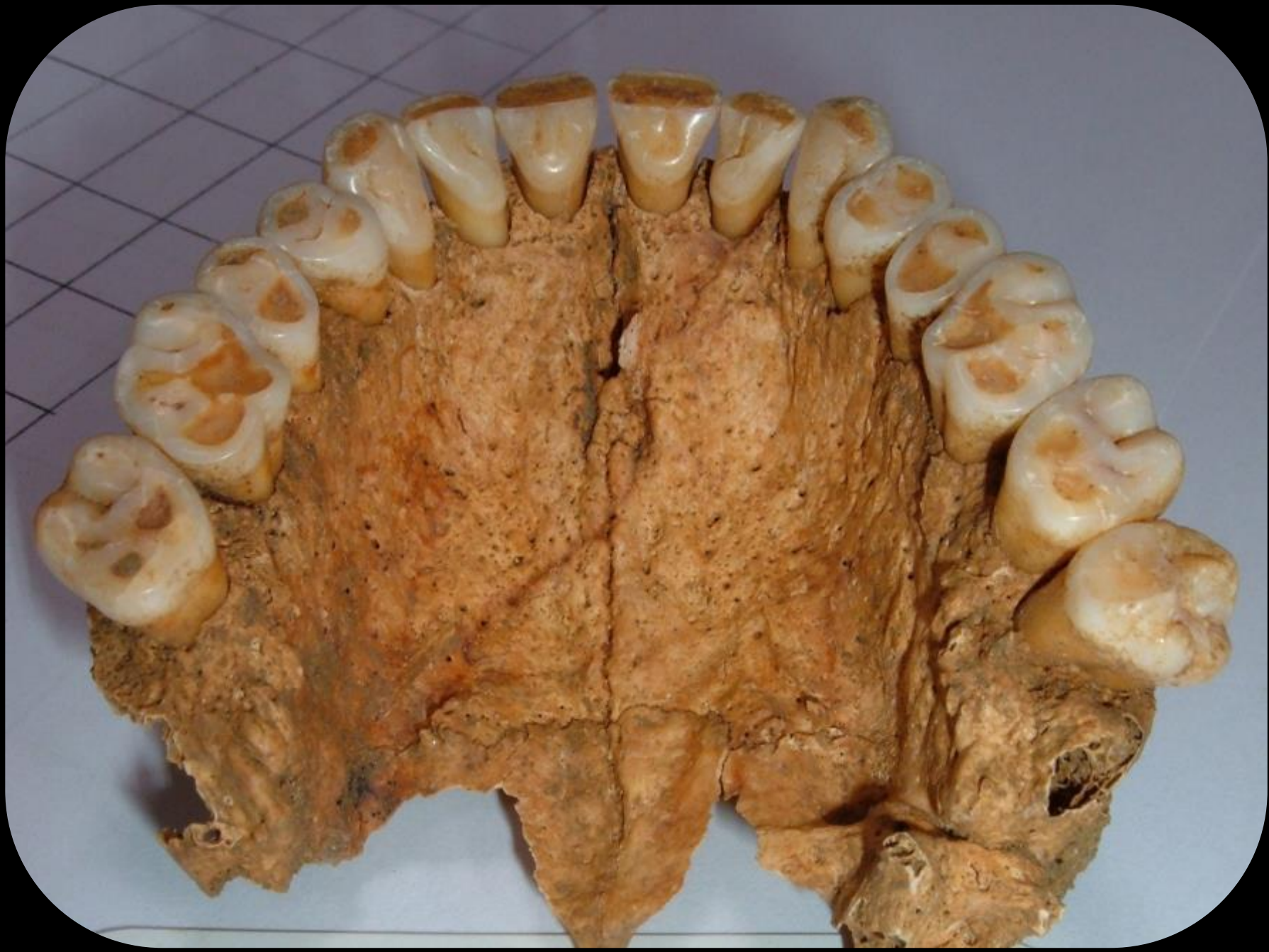
Anthropol. Anz.
J. Biol. Clinic. Anthropol.
published online December 2014

PrePub Article

A panorama of tooth wear during the medieval period

Rémi Esclassan[1, 2], Djillali Hadjouis[3], Richard Donat[4], Olivier Passarrius[5], Delphine Maret[1, 2], Frédéric Vaysse[1, 2] and Eric Crubézy[2]

(Esclassan, 2009)



(Esclassan, 2009)

(Esclassan, 2010)

(Esclassan, 2009)

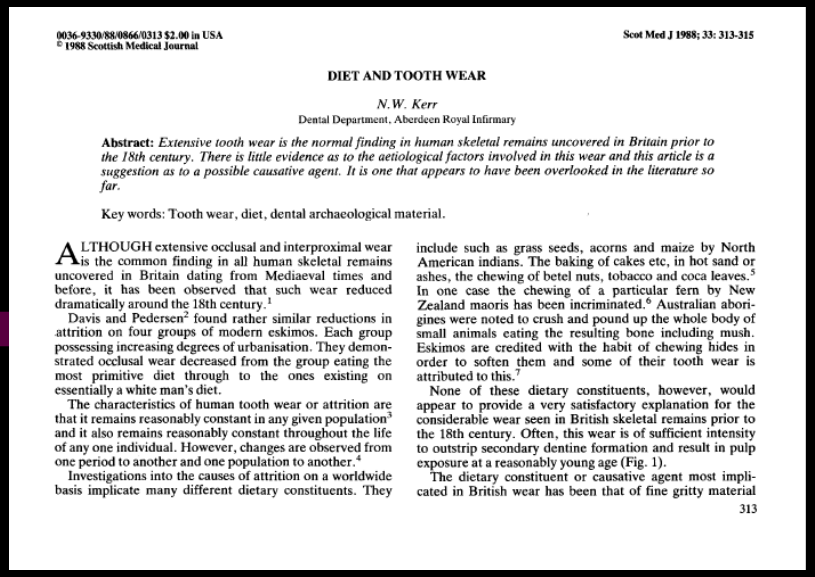
(Esclassan, 2009)

- Causes de l'usure ?

- Intensité des forces masticatrices (D'Incau, 2004).

– Particules abrasives dans la nourriture: quartz, sables, écorces, petits os…

– Particules minérales provenant des meules à pain (Belmont, 2006)



0036-9330/88/0866/0313 $2.00 in USA

Scot Med J 1988; 33: 313-315

DIET AND TOOTH WEAR

N.W. Kerr
Dental Department, Aberdeen Royal Infirmary

Abstract: *Extensive tooth wear is the normal finding in human skeletal remains uncovered in Britain prior to the 18th century. There is little evidence as to the aetiological factors involved in this wear and this article is a suggestion as to a possible causative agent. It is one that appears to have been overlooked in the literature so far.*

Key words: Tooth wear, diet, dental archaeological material.

ALTHOUGH extensive occlusal and interproximal wear is the common finding in all human skeletal remains uncovered in Britain dating from Mediaeval times and before, it has been observed that such wear reduced dramatically around the 18th century.[1]

Davis and Pedersen[2] found rather similar reductions in attrition on four groups of modern eskimos. Each group possessing increasing degrees of urbanisation. They demonstrated occlusal wear decreased from the group eating the most primitive diet through to the ones existing on essentially a white man's diet.

The characteristics of human tooth wear or attrition are that it remains reasonably constant in any given population[3] and it also remains reasonably constant throughout the life of any one individual. However, changes are observed from one period to another and one population to another.[4]

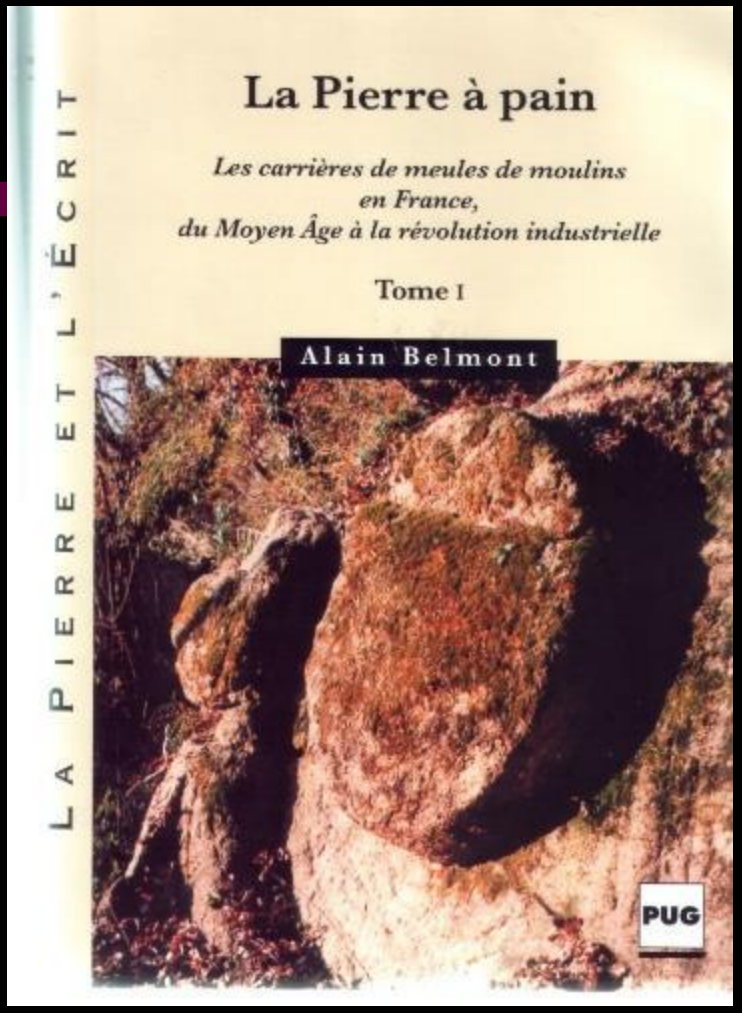
Investigations into the causes of attrition on a worldwide basis implicate many different dietary constituents. They include such as grass seeds, acorns and maize by North American indians. The baking of cakes etc, in hot sand or ashes, the chewing of betel nuts, tobacco and coca leaves.[5] In one case the chewing of a particular fern by New Zealand maoris has been incriminated.[6] Australian aborigines were noted to crush and pound up the whole body of small animals eating the resulting bone including mush. Eskimos are credited with the habit of chewing hides in order to soften them and some of their tooth wear is attributed to this.[7]

None of these dietary constituents, however, would appear to provide a very satisfactory explanation for the considerable wear seen in British skeletal remains prior to the 18th century. Often, this wear is of sufficient intensity to outstrip secondary dentine formation and result in pulp exposure at a reasonably young age (Fig. 1).

The dietary constituent or causative agent most implicated in British wear has been that of fine gritty material

- *« Les particules de pierre arrachées à des meules trop tendres infestaient la farine et se retrouvaient en bout de course intimement mêlées à la mie et la croûte ».*

(Boulangers à la fabrication du pain Lyon, 1450-1500 *Missel franciscain*. Lyon)



Usure d'origine culturelle :

- **Mutilations dentaires rituelles**
  - Ethiopie, Congo…
  - Indonésie Malaisie..

1. Exemple de classification élaborée au début du XXe siècle [4].

Proposition d'une nouvelle grille de classification *des altérations dentaires volontaires en anthropologie*

Mutilations soustractives

Pierre-Alain Canivet, Felix Molloumba, Rémi Esclassan

Les altérations dentaires volontaires, ou mutilations dentaires, sont un phénomène culturel toujours d'actualité qui intéresse depuis longtemps les anthropologues (Magitot, 1880). Depuis le XIXe siècle, des classifications ont été élaborées, basées sur des types morphologiques issus de zones géographiques ou de synthèses incomplètes [3, 4] (fig. 1). Dans un souci de clarification et d'actualisation, l'objectif de notre travail est de proposer une classification morpho-descriptive et évolutive alliant précision et exhaustivité, dont la structure permet un référencement rapide par l'utilisateur.

Notre classification morpho-descriptive est fondée sur une répartition en types et sous-types, selon l'aspect de la dent après traitement mutilatoire. Leur désignation respecte ensuite un code alphanumérique à plusieurs étages:

1. Désignation de chaque famille, type ou sous-type par une unique lettre.
2. Chiffres réservés uniquement aux nombres.
3. Utilisation de parenthèses pour combiner des sous-types de même niveau en créant des bifurcations.

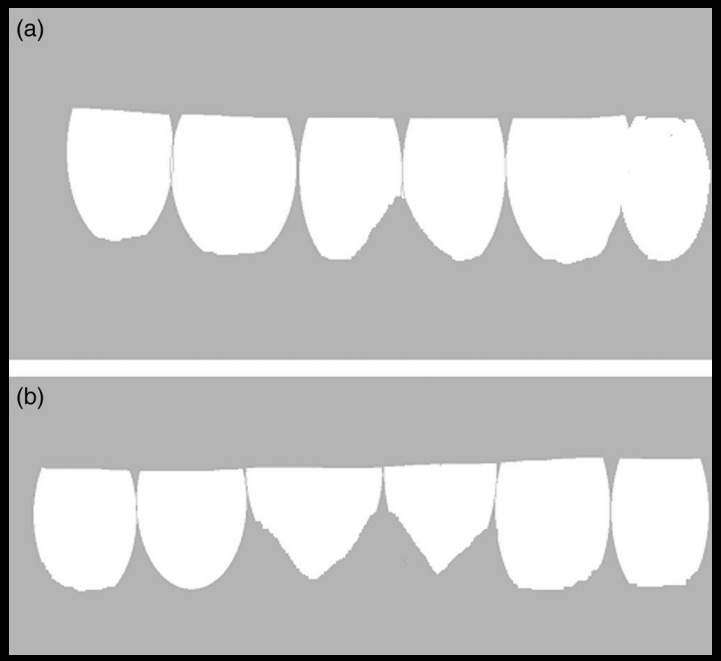
(Canivet, 2015)

ETHNOARCHAEOLOGY, Vol. 8 No. 1, April, 2016, 57–68

"I have to Resemble My Ancestors through Modification of Midline Diastema": An Ethnoarchaeological Study of Dental Modification among Karrayyu Oromo, Central Ethiopia

Abdi Aseffa[1], Bula Sirika Wayessa[2] and Temesgen Burka[3]

[1]Department of History and Heritage Management, Jijiga University, Jijiga, Ethiopia; [2]Department of Anthropology and Archaeology, University of Calgary, 2500 University Dr. N.W. Calgary, Calgary, AB, Canada T2N 1N4; [3]Department of Archaeology and Heritage Management, Addis Ababa University, Addis Ababa, Ethiopia



(Abdi Asefa et al, 2016)

Jeune fille Afar (Ethiopie), (Eric Lafforgue®)

(http://www.ericlafforgue.com)

Femme mentawai, Indonésie (Lafforgue, 2009)

Actes. Société française d'histoire de l'art dentaire, 2009, 14

Conséquences à long terme des mutilations dentaires chez les Bantous et Pygmées au nord-ouest du Congo-Brazzaville

Consequences of dental mutilations in the long term among Bantous and Pygmies in the north-western part of Congo-Brazzaville

Félix Molloumba *, Firmin Bossalil **, Pierrot Molloumba ***, Jules Bamengozi ****

(Molloumba, 2008)

Origine «professionnelle »

International Journal of Osteoarchaeology
Int. J. Osteoarchaeol. 13: 168–172 (2003)
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/oa.646

SHORT REPORT

Marked Occupational Dental Abrasion from Medieval Kent

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[a] 20 Falcon Close, Haxby, York YO32 3NY, UK
[b] Vichy House, Canterbury, Kent, UK

ABSTRACT A medieval male skeleton displays marked dental abrasion which is considered to be occupational, possibly related to carpentry. Copyright © 2003 John Wiley & Sons, Ltd.

Key words: dental abrasion; occupational; iron carpentry nails; medieval Kent; Stonar

The material

The examination of 70 adult dentitions from a medieval cemetery at Stonar, near Sandwich in Kent revealed one case of marked dental abrasion in a 30–40 year old male. The most severe changes involve the anterior maxillary teeth (Figures 1 and 5). The right incisors display a wedge-shaped loss of enamel and dentine superior to the distal cemento-enamel junction (CEJ) and concave abrasion of the mesial aspect of their crowns. The larger distal defect, on the central incisor, is c. 3 mm deep with a maximum width of 3 mm. The mesial abrasion of the lateral extends from the incisal edge to the CEJ (Figures 1 and 5).

The mesial and distal aspects of the left central incisor display marked abrasion. Only a 1 mm wide central enamel projection is visible (Figures 1 and 5). The left lateral presents with mesial abrasion. The distal CEJ of the first right premolar also displays a concave abrasion with a linear defect at its deepest point.

In the mandible, a right canine, a right central incisor and a left second premolar were not recovered from the excavation site. Only a mesial sliver of the right lateral incisor crown is intact (Figure 1). Concave abrasions are demonstrable on the mesial and distal surfaces of the right and left lateral crowns, respectively. The buccal aspect of the right molars display a narrow linear abrasion just below the CEJ (Figure 2). A similar, although wider abrasion is visible on the left molars (Figure 3).

The attrition follows the normal pattern and a clear reversed or anti-curve of Monson has been established *i.e.* the greatest wear occurs on the buccal aspect of the lower molar and the palatal aspect of the upper molar crowns (Hillson, 1996, Figure 11.4). In our specimen, there is evidence that attrition was more marked on the left side. All third molars appear to have been congenitally absent. Interstitial carious cavities were the only other dental pathology. All are mandibular and involve the mesial aspect of both first molars and the distal aspect of both right premolars.

Discussion

Marked attrition, reaching the CEJ, is not unusual in archaeological material. In post-medieval material, smooth concave abrasion of the occlusal surfaces of the anterior teeth occurs due to the habitual smoking of a clay-pipe (Anderson, 2002, Figure 2). Even modern tobacco

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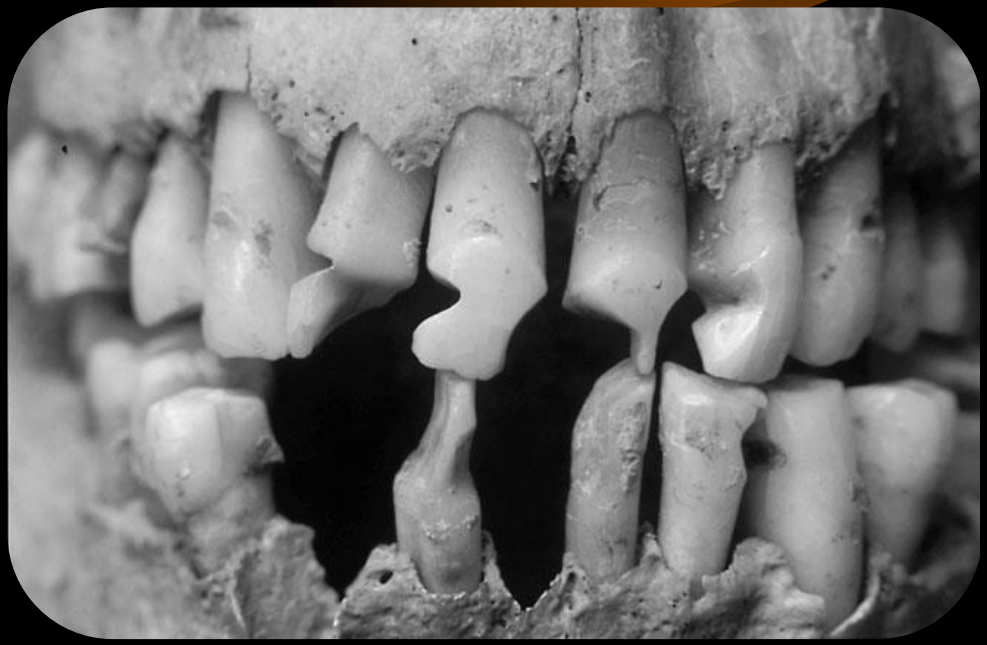
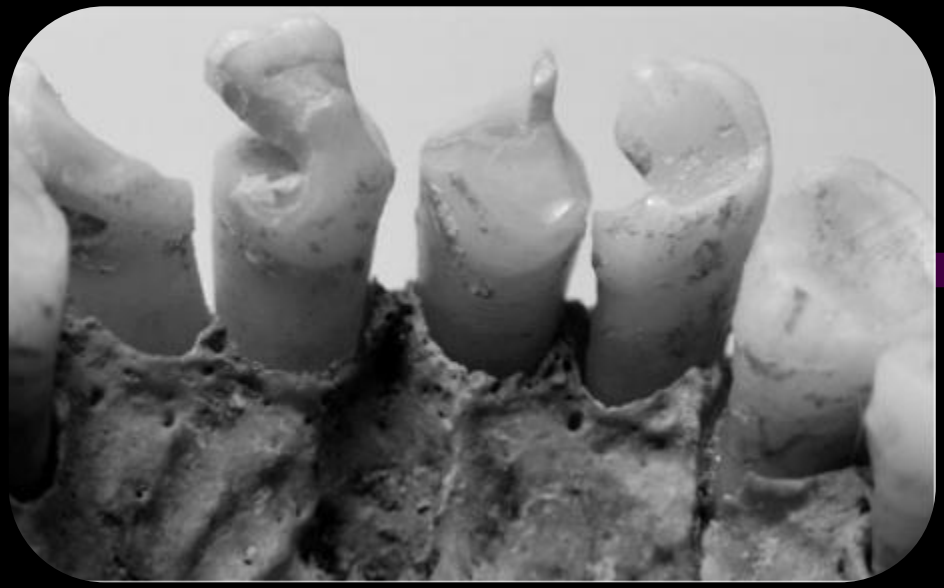
Received 25 April 2002
Revised 27 August 2002
Accepted 12 September 2002



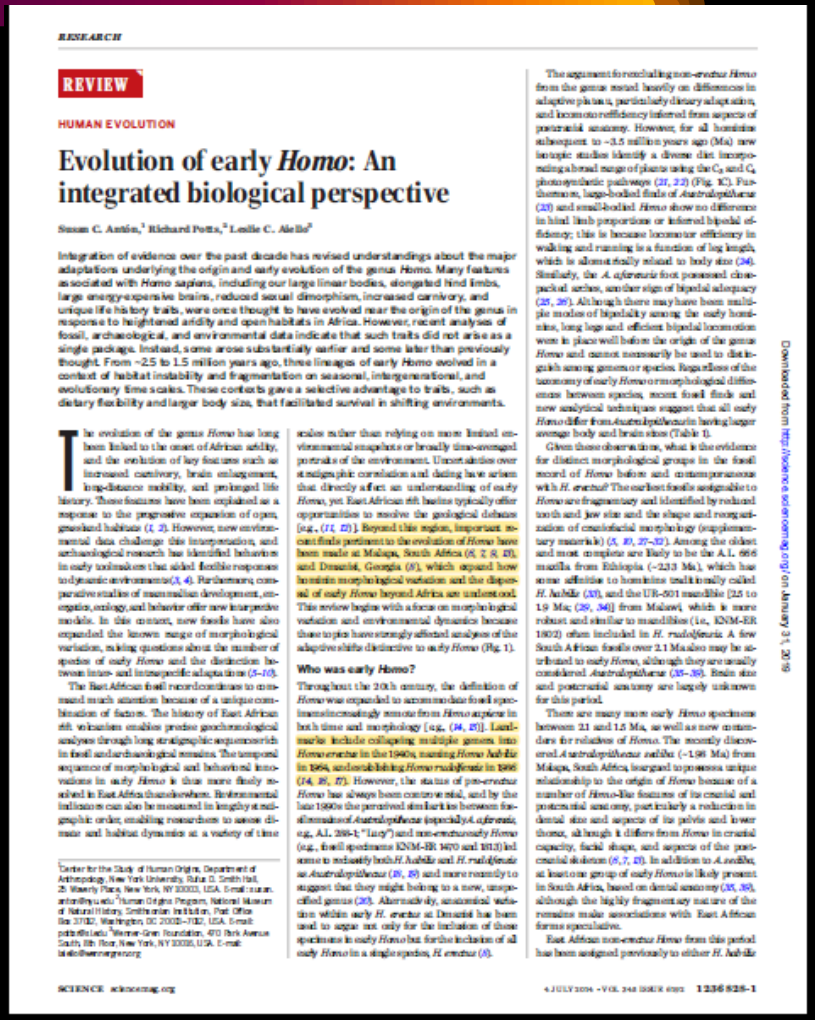
(Turner, 2003)



(Turner, 2003)

« *Take Home Message* »

- Le Passé est important
- Populations anciennes : Peu des caries mais usure importante
- Rares traces de soins
- Plus de caries chez les femmes que chez les hommes (pas significatif…)
- Mutilations rituelles toujours présentes
- Lisez : Livres, articles,…!!



RESEARCH

REVIEW

HUMAN EVOLUTION

Evolution of early *Homo*: An integrated biological perspective

Susan C. Antón,[1] Richard Potts,[2] Leslie C. Aiello[3]

Integration of evidence over the past decade has revised understandings about the major adaptations underlying the origin and early evolution of the genus *Homo*. Many features associated with *Homo sapiens*, including our large linear bodies, elongated hind limbs, large energy-expensive brains, reduced sexual dimorphism, increased carnivory, and unique life history traits, were once thought to have evolved near the origin of the genus in response to heightened aridity and open habitats in Africa. However, recent analyses of fossil, archaeological, and environmental data indicate that such traits did not arise as a single package. Instead, some arose substantially earlier and some later than previously thought. From ~2.5 to 1.5 million years ago, three lineages of early *Homo* evolved in a context of habitat instability and fragmentation on seasonal, intergenerational, and evolutionary time scales. These contexts gave a selective advantage to traits, such as dietary flexibility and larger body size, that facilitated survival in shifting environments.

The evolution of the genus *Homo* has long been linked to the onset of African aridity, and the evolution of key features such as increased carnivory, brain enlargement, long-distance mobility, and prolonged life history. These features have been explained as a response to the progressive expansion of open, grassland habitats (1, 2). However, new environmental data challenge this interpretation, and archaeological research has identified behaviors in early toolmakers that aided flexible responses to dynamic environments (3, 4). Furthermore, comparative studies of mammalian development, energetics, ecology, and behavior offer new interpretive models. In this context, new fossils have also expanded the known range of morphological variation, raising questions about the number of species of early *Homo* and the distinction between inter- and intraspecific adaptations (5–10).

The East African fossil record continues to command much attention because of a unique combination of factors. The history of East African rift volcanism enables precise geochronological analyses through long stratigraphic sequences rich in fossil and archaeological remains. The temporal sequence of morphological and behavioral innovations in early *Homo* is thus more finely resolved in East Africa than elsewhere. Environmental inference can also be measured in lengthy stratigraphic order, enabling researchers to assess climate and habitat dynamics at a variety of time scales rather than relying on more limited environmental snapshots or broadly time-averaged portraits of the environment. Uncertainties over stratigraphic correlation and dating have arisen that directly affect an understanding of early *Homo*, yet East African rift basins typically offer opportunities to resolve the geological debates [e.g., (11, 12)]. Beyond this region, important ancient finds pertinent to the evolution of *Homo* have been made at Malapa, South Africa (6, 7, 8, 13), and Dmanisi, Georgia (9), which expand how hominin morphological variation and the dispersal of early *Homo* beyond Africa are understood. This review begins with a focus on morphological variation and environmental dynamics because these topics have strongly affected analyses of the adaptive shifts distinctive to early *Homo* (Fig. 1).

Who was early Homo?

Throughout the 20th century, the definition of *Homo* was expanded to accommodate fossil specimens increasingly remote from *Homo sapiens* in both time and morphology [e.g., (14, 15)]. Landmarks include collapsing multiple genera into *Homo erectus* in the 1940s, naming *Homo habilis* in 1964, and establishing *Homo rudolfensis* in 1986 (14, 15, 17). However, the status of pre-erectus *Homo* has always been controversial, and by the late 1990s the perceived similarities between fossil hominins of *Australopithecus* (especially *A. afarensis*, e.g., A.L. 288-1; "Lucy") and non-erectus early *Homo* (e.g., fossil specimens KNM-ER 1470 and 1813) led some to reclassify both *H. habilis* and *H. rudolfensis* as *Australopithecus* (18, 19) and more recently to suggest that they might belong to a new, unspecified genus (20). Alternatively, anatomical variation within early *H. erectus* at Dmanisi has been used to argue not only for the inclusion of these specimens in early *Homo* but for the inclusion of all early *Homo* in a single species, *H. erectus* (9).

The argument for excluding non-erectus *Homo* from the genus rested heavily on differences in adaptive plateau, particularly dietary adaptations, and locomotor efficiency inferred from aspects of postcranial anatomy. However, for all hominins subsequent to ~3.5 million years ago (Ma) new isotopic studies identify a diverse diet incorporating a broad range of plants using the C_3 and C_4 photosynthetic pathways (21, 22) (Fig. 1C). Furthermore, large-bodied finds of *Australopithecus* (23) and small-bodied *Homo* show no difference in hind limb proportions or inferred bipedal efficiency; this is because locomotor efficiency in walking and running is a function of leg length, which is almost totally related to body size (24). Similarly, the *A. afarensis* foot possessed circular-packed arches, another sign of bipedal adequacy (25, 26). Although there may have been multiple modes of bipedality among the early hominins, long legs and efficient bipedal locomotion were in place well before the origin of the genus *Homo* and cannot necessarily be used to distinguish among genera or species. Regardless of the taxonomy of early *Homo* or morphological differences between species, recent fossil finds and new analytical techniques suggest that all early *Homo* differ from *Australopithecus* in having larger average body and brain sizes (Table 1).

Given these observations, what is the evidence for distinct morphological groups in the fossil record of *Homo* before and contemporaneous with *H. erectus*? The earliest fossils assignable to *Homo* are fragmentary and identified by reduced tooth and jaw size and the shape and reorganization of craniofacial morphology (supplementary materials) (5, 10, 27–32). Among the oldest and most complete are likely to be the A.L. 666 mandible from Ethiopia (~2.33 Ma), which has some affinities to hominins traditionally called *H. habilis* (33), and the UR-501 mandible (2.5 to 1.9 Ma; [29, 34]) from Malawi, which is more robust and similar to mandibles (i.e., KNM-ER 1802) often included in *H. rudolfensis*. A few South African fossils over 2.1 Ma also may be attributed to early *Homo*, although they are usually considered *Australopithecus* (35–38). Brain size and postcranial anatomy are largely unknown for this period.

There are many more early *Homo* specimens between 2.1 and 1.5 Ma, as well as new contenders for relatives of *Homo*. The recently discovered *Australopithecus sediba* (~1.98 Ma) from Malapa, South Africa, is argued to possess unique relationship to the origin of *Homo* because of a number of *Homo*-like features of its cranial and postcranial anatomy, past puberty a reduction in dental size and aspects of its pelvis and lower thorax, although it differs from *Homo* in cranial capacity, facial shape, and aspects of the postcranial skeleton (6, 7, 13). In addition to *A. sediba*, at least one group of early *Homo* is likely present in South Africa, based on dental anatomy (35, 36), although the highly fragmentary nature of the remains make associations with East African forms speculative.

East African non-erectus *Homo* from this period has been assigned previously to either *H. habilis*

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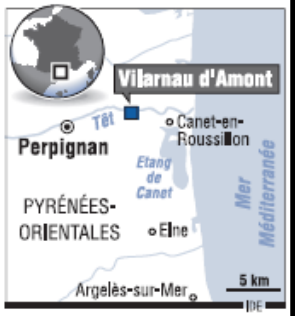
« L'Humanité Dimanche », juillet 2008

Au Moyen Âge, moins de caries qu'aujourd'hui mais des dents usées

ARCHÉOLOGIE
Une équipe de chercheurs toulousains a dressé le bilan de santé dentaire de 58 personnes ayant vécu dans le Roussillon entre le XII[e] et le XIV[e] siècle.



LES GENS qui vivaient en France au Moyen Âge avaient moitié moins de caries qu'aujourd'hui. Rien d'étonnant à cela, la consommation de sucre n'a débuté qu'à partir du XVII[e] siècle sur le continent européen. Moins attendu en revanche, les dents, à cette époque, étaient considérablement usées, abrasées. En effet, on mangeait beaucoup de céréales (blé, épeautre, millet, seigle) et ces dernières étaient souvent grossièrement moulues, mal triées et mêlées de petits cailloux. Des traces de carences alimentaires et de stress physiologique sont repérables aussi sur l'émail dentaire. C'est ce que révèle l'étude menée par une équipe de chercheurs toulousains sur une population de 58 adultes ayant vécu dans le Roussillon entre le XII[e] et le XIV[e] siècle (*Archives of Oral Biology*, mars 2009). Des résultats identiques à ceux déjà collectés en Croatie, en Finlande, en Italie, en Turquie ou en Écosse.

Les mâchoires intégralement conservées de 58 adultes (29 femmes et 29 hommes) ont été examinées par l'équipe toulousaine pilotée par Rémi Esclassan, de l'université Toulouse III-CNRS. Le fait de posséder des mâchoires inférieures et supérieures de cette époque en bon état est exceptionnel. Elles ont été collectées lors de fouilles effectuées par l'Inrap (Institut national de recherches archéologiques préventives) dans l'ancien cimetière de Vilarnau d'Amont, dans les Pyrénées-Orientales (*voir carte*). Ce village a été abandonné à la fin du XIV[e] siècle, après avoir été décimé par la peste noire. Il a été découvert à l'occasion du remplacement d'un ancien vignoble. Le cimetière comportait près d'un millier de tombes.

Une espérance de vie comprise entre 35 et 40 ans

Entre le XII[e] et le XIV[e] siècle, dans le sud de la France, l'espérance de vie ne dépassait pas 35-40 ans. Pour cette raison, le nombre de dents perdues au cours de leur vie par ces 58 Catalans peut paraître assez modeste : un peu plus de quatre en moyenne par personne. Ces dents se différencient de celles tombées post mortem du fait que l'alvéole osseuse est cicatrisée et comblée.

Les chercheurs vont maintenant comparer l'état de santé dentaire des habitants de Vilarnau à celui de Toulousains de la même époque. La construction du métro a en effet permis de découvrir plusieurs sépultures datant de la fin du Moyen Âge.

YVES MISE

« Le Figaro », 23 mars 2009

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LE FIGARO.fr

CACTUS

ESSAYEZ - LA

La dent de Tautavel est le plus vieux reste humain jamais trouvé en France

ACTUALITÉ > SCIENCES & ENVIRONNEMENT

Cette dent de 550 000 ans, découverte par deux apprentis archéologues dans les Pyrénées orientales, appartenait probablement à un pré-néandertalien. Elle pourrait livrer de précieuses

https://www.hominides.com/html/actualites/dent-550000-ans-tautavel-0947.php

Thanks to Jean Yves Ferri