

# Contents

## **xI Preface**

Koppe, T.; Meyer, G. (Greifswald); Alt, K.W. (Mainz)

Dental Evolution

### **1 Dental Evolution: An Introduction**

Smith, B.H. (Ann Arbor, Mich.)

### **3 Phylogeny, Life History and the Timing of Molar Crown Formation in Two Archaic Ungulates, *Meniscotherium* and *Phenacodus* (Mammalia, 'Condylarthra')**

Dirks, W. (Newcastle upon Tyne); Anemone, R.L. (Kalamazoo, Mich.); Holroyd, P.A. (Berkeley, Calif.); Reid, D.J.; Walton, P. (Newcastle upon Tyne)

### **9 Dentary Tooth Shape in *Sphenodon* and Its Fossil Relatives (Diapsida: Lepidosauria: Rhynchocephalia)**

Jones, M.E.H. (London)

### **16 Molar Crown and Root Size Relationship in Anthropoid Primates**

Kupczik, K.; Olejniczak, A.J.; Skinner, M.M.; Hublin, J.-J. (Leipzig)

### **23 How Many Landmarks? Assessing the Classification Accuracy of *Pan* Lower Molars Using a Geometric Morphometric Analysis of the Occlusal Basin as Seen at the Enamel-Dentine Junction**

Skinner, M.M. (Leipzig/Washington, DC, Wash.); Gunz, P. (Leipzig); Wood, B.A. (Washington, DC, Wash.); Hublin, J.-J. (Leipzig)

### **30 Preserved Microstructure and Mineral Distribution in Tooth and Periodontal Tissues in Early Fossil Hominin Material from Koobi Fora, Kenya**

Furseth Klinge, R. (Oslo); Dean, M.C. (London); Risnes, S.; Erambert, M.; Gunnæs, A.E. (Oslo)

**36 Dental Morphology: An Introduction**

Teaford, M.F. (Baltimore, Md.)

**38 Tooth Form and Function: Insights into Adaptation through the Analysis of Dental Microwear**

Ungar, P.S. (Fayetteville, Ark.)

**44 Primate Dental Enamel: What It Says about Diet**

Lucas, P.W.; Constantino, P.J.; Lee, J.J.-W. (Washington, D.C.); Hartstone-Rose, A. (Altoona, Pa.); Chai, H. (Tel Aviv); Lee, W.-K. (Argonne, Ill.); Dominy, N. (Santa Cruz, Calif.)

**49 Testing the Utility of Dental Morphological Traits Commonly Used in the Forensic Identification of Ancestry**

Edgar, H.J.H. (Albuquerque, N. Mex.)

**55 Meaning of the Canine Sexual Dimorphism in Fossil Owl Monkey, *Aotus dindensis* from the Middle Miocene of La Venta, Colombia**

Takai, M.; Nishimura, T.; Shigehara, N. (Inuyama); Setoguchi, T. (Kyoto)

**60 Observation of Lateral Mandibular Protuberance in Taiwan macaque (*Macaca cyclopis*) Using Computed Tomography Imaging**

Kondo, S.; Naitoh, M.; Futagami, C.; Hanamura, H.; Goto, K.; Arijii, E. (Nagoya); Takai, M. (Inuyama)

Dental Tissues

**65 Dental Tissues: An Introduction**

Dean, M.C. (London)

**68 Extension Rates and Growth in Tooth Height of Modern Human and Fossil Hominin Canines and Molars**

Dean, M.C. (London)

**74 Amelogenin Evolution and Tetrapod Enamel Structure**

Diekwisch, T.G.H.; Jin, T.; Wang, X.; Ito, Y.; Schmidt, M.; Druzinsky, R. (Chicago, Ill.); Yamane, A. (Yokohama); Luan, X. (Chicago, Ill.)

**80 Microstructure of Dental Hard Tissues and Bone in the Tuatara Dentary, *Sphenodon punctatus* (Diapsida: Lepidosauria: Rhynchocephalia)**

Kieser, J.A.; Tkatchenko, T. (Dunedin); Dean, M.C.; Jones, M.E.H. (London); Duncan, W. (Dunedin); Nelson, N.J. (Wellington)

**86 Temporal Nature of Periradicular Bands ('Striae Periradicales') on Mammalian Tooth Roots**

Smith, T.M. (Leipzig); Reid, D.J. (Newcastle upon Tyne)

**93 Consequences of X-Linked Hypohidrotic Ectodermal Dysplasia for the Human Jaw Bone**

Lesot, H. (Strasbourg/Liverpool); Clauss, F.; Manière, M.C.; Schmittbuhl, M. (Strasbourg)

## Dental Growth and Development

- 100 Dental Growth and Development: An Introduction**  
Kjær, I. (Copenhagen)
- 102 Regulation of Enamel and Dentin Mineralization by Vitamin D Receptor**  
Zhang, X.; Beck, P.; Rahemtulla, F.; Thomas, H.F. (Birmingham, Ala.)
- 110 Patterns of Asymmetry in Primary Tooth Emergence of Australian Twins**  
Mihailidis, S.; Woodroffe, S.N.; Hughes, T.E.; Bockmann, M.R.; Townsend, G.C. (Adelaide, S.A.)
- 116 Rates of Enamel Formation in Human Deciduous Teeth**  
Birch, W.; Dean, M.C. (London)
- 121 Tooth Root and Craniomandibular Morphological Integration in the Common Chimpanzee (*Pan troglodytes*): Alternative Developmental Models for the Determinants of Root Length**  
Cobb, S.N.; Baverstock, H. (Hull)
- 128 Root Growth during Molar Eruption in Extant Great Apes**  
Kelley, J. (Chicago, Ill.); Dean, M.C. (London); Ross, S. (Chicago, Ill.)

## Clinical Aspects of Dental Morphology

- 134 Clinical Aspects of Dental Morphology: An Introduction**  
Brook, A. (Liverpool)
- 136 How Studies of Twins Can Inform Our Understanding of Dental Morphology**  
Townsend, G. (Adelaide, S.A./Liverpool); Hughes, T.; Bockmann, M. (Adelaide, S.A.); Smith, R.; Brook, A. (Liverpool)
- 142 Syntetic Superimposition of Dental 3D Data: Application in Twin Studies**  
Smith, R.N. (Liverpool); Townsend, G. (Liverpool/Adelaide, S.A.); Chen, K.; Brook, A. (Liverpool)
- 148 A Three-Dimensional Comparison of the Modifying Effects of Familial Genetic Contribution in Turner Syndrome**  
Horrocks, L.R.; Brook, A. (Liverpool); Alvesalo, L. (Liverpool/Oulu); Smith, R.N. (Liverpool)
- 153 Permanent Tooth Formation as a Method of Estimating Age**  
Liversidge, H.M. (London)

## Teeth and Reconstruction of the Past

- 158 Teeth and Reconstruction of the Past: An Introduction**  
Lukacs, J.R. (Eugene, Oreg.)
- 162 Can Dental Caries Be Interpreted as Evidence of Farming? The Asian Experience**  
Tayles, N. (Dunedin); Domett, K. (Townsville); Halcrow, S. (Dunedin)

- 167 Teeth and the Past in Portugal: Pathology and the Mesolithic-Neolithic Transition**  
Jackes, M. (Waterloo, Ont.)
- 173 Pattern of Dental Caries in the Historical Human Population of Kujawy in the Polish Lowland (North-Central Poland)**  
Kurek, M.; Borowska-Strugińska, B.; Mazurkiewicz, J.; Nieczuja-Dwojacka, J.; Żądzińska, E. (Łódź)
- 178 Deciduous Tooth Growth in an Ancient Greek Infant Cemetery**  
FitzGerald, C. (Hamilton, Ont.); Hillson, S. (London)
- 184 Tooth Cementum Annulation Method: Accuracy and Applicability**  
Obertová, Z.; Francken, M. (Düsseldorf)
- 190 Nothing in Nature Is as Consistent as Change**  
Alt, K.W.; Rossbach, A. (Mainz)
- 197 Author Index**
- 199 Subject Index**