

Contents

List of contributors	VII
Introduction	1
W.V. KOENIGSWALD & P.M. SANDER	
<i>Ontogeny</i>	
1 The ontogeny of mammalian enamel	5
L. MOSS-SALENTIJN, M.L. MOSS & M.S. YUAN	
<i>Crystallite level</i>	
2 A short review of studies on chemical and physical properties of enamel crystallites	31
T. SAKAE, K. SUZUKI & Y. KOZAWA	
<i>Prism level</i>	
3 Non-mammalian synapsid enamel and the origin of mammalian enamel prisms: The bottom-up perspective	41
P.M. SANDER	
4 The earliest prisms in mammalian and reptilian enamel	63
C.B. WOOD & D.N. STERN	
5 Characterization of enamel microstructure terminology and application of the origins of prismatic structures in systematic analyses	85
W.A. CLEMENS	
6 Tubules in Australian marsupials	113
C.F. GILKESON	
<i>Enamel type level</i>	
7 Differentiations in Hunter-Schreger bands of carnivores	123
C. STEFEN	

VI Contents

Schmelzmuster level

- 8 Brief survey of enamel diversity at the schmelzmuster level in Cenozoic placental mammals 137
W.V. KOENIGSWALD
- 9 Incisor enamel microstructure and systematics in rodents 163
T. MARTIN
- 10 The enamel structure of some fossil and recent whales from the Indian subcontinent 177
A. SAHNI & W.V. KOENIGSWALD

Dentition level

- 11 The variability of enamel structure at the dentition level 193
W.V. KOENIGSWALD

Evolution

- 12 Evolutionary trends in the differentiation of mammalian enamel ultrastructure 203
W.V. KOENIGSWALD

Biomechanics

- 13 Mechanical adaptation in enamel 237
J.M. RENSBERGER
- 14 Schmelzmuster differentiation in leading and trailing edges, a specific biomechanical adaptation in rodents 259
W.V. KOENIGSWALD & P.M. SANDER

Terminology

- 15 Glossary of terms used for enamel microstructures 267
W.V. KOENIGSWALD & P.M. SANDER