

PRIMATE DENTITION: AN INTRODUCTION TO THE TEETH OF NON-HUMAN PRIMATES. By Daris R. Swindler. United Kingdom: Cambridge University Press (hardback), 2002. 294 pp. ISBN 0-521-65289-8. \$80.00

Daris Swindler's update to his 1976 publication, *Dentition of Non-human Primates*, presents a comprehensive database of the dentition of 85 living primate species. The book includes morphological and metrical descriptions as well as an overview of basic concepts in tooth anatomy, morphology, and histology. Throughout the text, Swindler provides comparative analyses and techniques for age estimation and stresses the value of dentition for understanding phylogeny and ontogeny. The text begins with background on dentition and includes a chapter on deciduous dentition. The core of the book features dental measurements and descriptions organized taxonomically. This excellent resource offers not only an introduction to non-human primate dentition but also acts as starting point for further research.

Chapter one reviews basic information on the order Primates and the methods of odontometry used throughout the text. All measurements were taken from museum specimens, and Swindler focuses on the normal range of variation in the dentition. The first chapter introduces the reader to the terms of position and the Cope-Osborn cusp terminology both visually and in the text. The diagrams are particularly useful for those unfamiliar with tooth terminology. Swindler also includes a table of synonyms for the Cope-Osborn nomenclature.

In chapter two, Swindler discusses dental anatomy and devotes sections to enamel, dentine, cementum, the tooth root, and pulp. Within each topic, Swindler outlines the composition, histology, and formation of each component while also integrating topics of current research. The enamel section features a discussion of the study of enamel microstructure, enamel hypoplasias, and cross-striations and their ontogenetic and phylogenetic implications. Swindler also highlights often neglected areas of inquiry including the microanatomy of dentine and cementum lines.

Chapter three provides a brief overview of dental development. Swindler discusses two theories for the development of heterodont tooth morphology—the morphogenetic field theory and the clone model. The text covers odontogenesis, ontogeny of crown patterns, and stages of permanent tooth formation. Drawings and photographs clarify and supplement the discussion. In the section on age estimation, Swindler emphasizes the idea that tooth formation may give a better indication of age than tooth emergence.

An exceptionally noteworthy contribution is the chapter four discussion of deciduous dentition, a topic widely covered for human dentition but not for non-

human primates. Swindler provides measurements and comparative analyses of the few specimens available for study. Within each section, Swindler provides written descriptions and detailed drawings and uncovers intriguing trends in dental development. For example, Swindler detects the presence of an underbite in the deciduous dentition of leaf-eating primates, *Alouatta* and *Colobus*. The condition occurs into adulthood, which suggests a genetic component for its presence.

The remainder of the text covers the morphological and metrical descriptions. Brief discussions of distribution and habitat, general dental information, and diet precede the morphological observations in each chapter. The general dental section features comparative analyses and identifies evolutionary trends for each group of non-human primates. Swindler also discusses the degree of sexual dimorphism in the dentition. The text includes detailed drawings of a majority of the species measured and illuminates the variations in dental features.

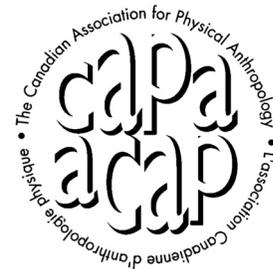
Swindler devotes chapter five to the suborder *Prosimii* with separate sections for each family. He incorporates such issues as the debate over the function of the dental comb into the morphological descriptions. Chapter six covers the superfamily *Ceboidea*. A diagram of canine-incisor relations in the marmoset and the tamarin clearly illustrates the differences in canine size and the variations between species. Chapter seven focuses on *Cercopithecoidea* and includes a discussion on enamel thickness in relation to diet and the origin of the bilophodont molar. A short chapter on *Hylobatidae* follows. The discussion features a definition of the Y-5 molar pattern and its variations. The coverage of the Y-5 pattern continues in chapter nine, which is devoted to *Pongidae*. The chapter includes a table of the mandibular groove patterns and cusp number showing slight deviations from the standard configuration. Swindler also discusses the variable appearance of the deflecting wrinkle and two extra cusps, the tuberculum sextum and tuberculum intermedium, in hominoid mandibular molars.

The appendices at the end of the book provide further reference resources. Appendix 1 features the odontometric information for the permanent and deciduous teeth (when available) of each species studied in the text. For each species, a table for the maxillary and mandibular teeth is presented with the number of specimens, the mesiodistal and buccolingual measurements for each tooth, t-test results for sexual dimorphism, and the range of measurements. Additionally, the tables include the presence/absence of a hypoconulid and the corresponding information. Appendix 2 provides the dental eruption sequences of the mandibular and maxillary teeth for all the species discussed in the book. When available, Swindler includes data for both sexes. The information is useful

not only for aging individuals but also for ascertaining life history patterns. The text also features a glossary at its conclusion.

Primate Dentition serves as an essential resource for students and professionals in dental anthropology, primatology, and comparative anatomy. The diagrams and definitions prevent the text from becoming overwhelming for students but also not too rudimentary for more advanced readers. Swindler provides a valuable summary of current knowledge in non-human primate dentition and prompts further investigation in the field.

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CAPA Meeting

The annual meeting of the Canadian Association for Physical Anthropology will be held in Edmonton, Alberta, October 23-25 of 2003. Contributed papers and posters for a symposium on Dental Anthropology are welcome.

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