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KEY=HOW - MCGEE HUNTER

REVIEW OF

DENTAL FUNCTIONAL MORPHOLOGY, HOW TEETH WORK

DENTAL FUNCTIONAL MORPHOLOGY

HOW TEETH WORK

Cambridge University Press Publisher Description

A COMPANION TO DENTAL ANTHROPOLOGY

John Wiley & Sons Companion to Dental Anthropology presents a collection of original readings addressing all aspects and sub-disciplines of the field of dental anthropology—from its origins and evolution through to the latest scientific research. Represents the most comprehensive coverage of all sub-disciplines of dental anthropology available today Features individual chapters written by experts in their specific area of dental research Includes authors who also present results from their research through case studies or voiced opinions about their work Offers extensive coverage of topics relating to dental evolution, morphometric variation, and pathology

TEETH: A VERY SHORT INTRODUCTION

OUP Oxford Teeth are amazing - the product of half a billion years of evolution. They provide fuel for the body by breaking apart other living things; and they must do it again and again over a lifetime without themselves being broken in the process. This means that plants and animals have developed tough or hard tissues for protection, and teeth

have evolved ways to sharpen or strengthen themselves to overcome those defences. And just as different jobs require different tools, animals with different diets have different shaped teeth to deal with the variety of foods that they eat. In this Very Short Introduction, Peter S. Ungar, an award-winning author and leading scientist, presents the story of teeth. Ungar outlines the key concepts, including insights into the origin of teeth and their evolution. Considering why teeth are important, he describes how they are made, and how they work, including their fundamental importance in the fossil record. Ungar finishes with a review of mammal teeth, looking at how they evolved and how recent changes to our diet are now affecting dental health. **ABOUT THE SERIES:** The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

PRIMATE CRANIOFACIAL FUNCTION AND BIOLOGY

Springer Science & Business Media Primate Craniofacial Function and Biology is an integrative volume with broad coverage of current research on primate craniofacial biology and function. Topic headings include: the mammalian perspective on primate craniofacial form and function, allometric and comparative morphological studies of primate heads, in vivo research on primate mastication, modeling of the primate masticatory apparatus, primate dental form and function, and palaeoanthropologic studies of primate skulls. Additionally, the volume includes introductory chapters discussing how primatologists study adaptations in primates and a discussion of in vivo approaches for studying primate performance. At present, there are no texts with a similar focus on primate craniofacial biology and no sources that approach this topic from such a wide range of research perspectives. This breadth of research covered by leaders in their respective fields make this volume a unique and innovative contribution to biological anthropology.

EVOLUTION OF THE HUMAN DIET

THE KNOWN, THE UNKNOWN, AND THE UNKNOWABLE

Oxford University Press on Demand Publisher description

SCANNING ELECTRON MICROSCOPY FOR THE LIFE SCIENCES

Cambridge University Press A guide to modern scanning electron microscopy instrumentation, methodology and techniques, highlighting novel applications to cell and molecular biology.

DENTAL PERSPECTIVES ON HUMAN EVOLUTION

STATE OF THE ART RESEARCH IN DENTAL PALEOANTHROPOLOGY

Springer Science & Business Media The objective of the volume is to bring together, in one collection, the most innovative dental anthropological research as it pertains to the study of hominid evolution. In the past few decades both the numbers of hominid dental fossils and the sophistication of the techniques used to analyze them have increased substantially. The book's contributions focus on dental morphometrics, growth and development, diet and dental evolution.

TECHNIQUE AND APPLICATION IN DENTAL ANTHROPOLOGY

Cambridge University Press Bringing together a variety of accomplished dental researchers, this book covers a range of topics germane to the study of human and other primate teeth. The chapters encompass work on individuals to samples, ranging from prehistoric to modern times. The focus throughout the book is the methodology required for the study of modern dental anthropology, comprising the scientific methods in use today - ranging from simple observation to advanced computer-based analyses - which can be utilized by the reader in their own dental research. Originating from the 20th anniversary meeting of the Dental Anthropology Association, this is a valuable reference source for graduate students, academic researchers and professionals in the social and life sciences, as well as clinicians.

MAMMAL TEETH

ORIGIN, EVOLUTION, AND DIVERSITY

JHU Press His book is a must-read for paleontologists, mammalogists, and anthropologists.

TEXTBOOK OF DENTAL ANATOMY, PHYSIOLOGY & OCCLUSION

Jaypee Brothers Medical Publishers The new edition of this textbook is a practical guide to dental anatomy, physiology and occlusion for students. Divided into nine sections, each chapter features numerous photographs, tables, boxes, flowcharts and diagrams with descriptions. The second edition has been fully revised to provide students with the latest advances in the field. A new chapter on tooth carving is included. Differences between types of tooth are illustrated in tabular form and a summary chart enables quick revision. MCQs are provided to help students prepare for theory and viva voce examinations. Key points Practical guide to dental anatomy, physiology and occlusion for students Fully revised, second edition with new chapter on tooth carving Includes summary charts and MCQs for quick revision Previous edition (9789350259405) published in 2013

DEVELOPMENT, FUNCTION AND EVOLUTION OF TEETH

Cambridge University Press In this field there has been an explosion of information generated by scientific research. One of the beneficiaries of this has been the study of morphology, where new techniques and analyses have led to insights into a wide range of topics. Advances in genetics, histology, microstructure, biomechanics and morphometrics have allowed researchers to view teeth from alternative perspectives. However, there has been little communication between researchers in the different fields of dental research. This book brings together overviews on a wide range of dental topics linking genes, molecules and developmental mechanisms within an evolutionary framework. Written by the leading experts in the field, this book will stimulate co-operative research in fields as diverse as paleontology, molecular biology, developmental biology and functional morphology.

DENTAL BIOMECHANICS

CRC Press Dental Biomechanics provides a comprehensive, timely, and wide-reaching survey of the relevant aspects of biomechanical investigation within the dental field. Leading the reader through the mechanical analysis of dental problems in dental implants, orthodontics, and natural tooth mechanics, this book covers an increasingly important and popular sub

FEEDING IN VERTEBRATES

EVOLUTION, MORPHOLOGY, BEHAVIOR, BIOMECHANICS

Springer This book provides students and researchers with reviews of biological questions related to the evolution of feeding by vertebrates in aquatic and terrestrial environments. Based on recent technical developments and novel conceptual approaches, the book covers functional questions on trophic behavior in nearly all vertebrate groups including jawless fishes. The book describes mechanisms and theories for understanding the relationships between feeding structure and feeding behavior. Finally, the book demonstrates the importance of adopting an integrative approach to the trophic system in order to understand evolutionary mechanisms across the biodiversity of vertebrates.

MATERIALS FOR THE DIRECT RESTORATION OF TEETH

Woodhead Publishing Materials for the Direct Restoration of Teeth focuses on the important role teeth play in our lives and how biomaterials scientists are ensuring that new dental materials are functional and esthetic. As research in the field is shifting away from traditional materials like metal, and towards more advanced materials, such as resins and ceramics, this book on the subject of modern materials for the direct repair of teeth provides readers with a comprehensive reference. The most

pertinent modern dental materials and their properties and applications for the direct restoration of teeth are presented, along with case examples and guidance notes making this book an essential companion for materials scientists and clinicians. Provides comprehensive coverage of conventional and modern materials for direct restoration of teeth Includes guidance notes and case examples to support dental clinicians in decision-making Authored by a scientist and a clinician, the book provides a balanced and complete treatise of the subject

LEMURS

ECOLOGY AND ADAPTATION

Springer Science & Business Media This book brings together information from recent research, and provides new insight into the study of lemur origins, and the ecology and adaptation of both extant and recently extinct lemurs. In addition, it addresses issues of primate behavioral ecology and how environment can play a major role in explaining species variation. It is the only comprehensive volume to focus on lemur ecology and adaptability, with chapters written by all the big names in the field.

A COMPANION TO BIOLOGICAL ANTHROPOLOGY

John Wiley & Sons An extensive overview of the rapidly growing field of biological anthropology; chapters are written by leading scholars who have themselves played a major role in shaping the direction and scope of the discipline. Extensive overview of the rapidly growing field of biological anthropology Larsen has created a who's who of biological anthropology, with contributions from the leading authorities in the field Contributing authors have played a major role in shaping the direction and scope of the topics they write about Offers discussions of current issues, controversies, and future directions within the area Presents coverage of the many recent innovations and discoveries that are transforming the subject

METHODS IN PALEOECOLOGY

RECONSTRUCTING CENOZOIC TERRESTRIAL ENVIRONMENTS AND ECOLOGICAL COMMUNITIES

Springer This volume focuses on the reconstruction of past ecosystems and provides a comprehensive review of current techniques and their application in exemplar studies. The 18 chapters address a wide variety of topics that span vertebrate paleobiology and paleoecology (body mass, postcranial functional morphology, evolutionary dental morphology, microwear and mesowear, ecomorphology, mammal community structure analysis), contextual paleoenvironmental studies (paleosols and sedimentology, ichnofossils, pollen, phytoliths, plant macrofossils), and

special techniques (bone microstructure, biomineral isotopes, inorganic isotopes, 3-D morphometrics, and ecometric modeling). A final chapter discusses how to integrate results of these studies with taphonomic data in order to more accurately characterize an ancient ecosystem. Current investigators, advanced undergraduates, and graduate students interested in the field of paleoecology will find this book immensely useful. The length and structure of the volume also makes it suitable for teaching a college-level course on reconstructing Cenozoic ecosystems.

DENTAL ANTHROPOLOGY

DENTOMED PUBLICATION HOUSE Symposia of the Society for the Study of Human Biology, Volume V: Dental Anthropology is a collection of papers that covers the application of dental pathology in the context of anthropology. The book presents 15 studies that cover various human dental variables and relates to different anthropological factors. The dental variables considered in the articles include tooth morphology; occlusion and malocclusion of primate teeth; morphogenesis of deciduous molar pattern in man; and double-rooted human lower canine teeth. The text also covers topics about race specific dental traits such as radiographic study of the Neanderthal teeth from Krapina; crown characters of the deciduous dentition of the Japanese-American hybrids; and analysis of the American Indian dentition. The selection will be of great interest to evolutionary scientists, such as anthropologists and paleontologists.

BIOARCHAEOLOGY

Cambridge University Press A synthetic treatment of the study of human remains from archaeological contexts for current and future generations of bioarchaeologists.

THE EVOLUTION OF THE HUMAN HEAD

Harvard University Press In one sense, human heads function much like those of other mammals. We use them to chew, smell, swallow, think, hear, and so on. But, in other respects, the human head is quite unusual. Unlike other animals, even our great ape cousins, our heads are short and wide, very big brained, snoutless, largely furless, and perched on a short, nearly vertical neck. Daniel E. Lieberman sets out to explain how the human head works, and why our heads evolved in this peculiarly human way. Exhaustively researched and years in the making, this innovative book documents how the many components of the head function, how they evolved since we diverged from the apes, and how they interact in diverse ways both functionally and developmentally, causing them to be highly integrated. This integration not only permits the head's many units to accommodate each other as they grow and work, but also facilitates evolutionary change. Lieberman shows how, when, and why the major transformations evident in the evolution of the human head occurred. The

special way the head is integrated, Lieberman argues, made it possible for a few developmental shifts to have had widespread effects on craniofacial growth, yet still permit the head to function exquisitely. This is the first book to explore in depth what happened in human evolution by integrating principles of development and functional morphology with the hominin fossil record. The Evolution of the Human Head will permanently change the study of human evolution and has widespread ramifications for thinking about other branches of evolutionary biology.

THE TEETH OF NON-MAMMALIAN VERTEBRATES

Academic Press The Teeth of Non-Mammalian Vertebrates is the first comprehensive publication devoted to the teeth and dentitions of living fishes, amphibians and reptiles. The book presents a comprehensive survey of the amazing variety of tooth forms among non-mammalian vertebrates, based on descriptions of approximately 400 species belonging to about 160 families. The text is lavishly illustrated with more than 600 high-quality color and monochrome photographs of specimens gathered from top museums and research workers from around the world, supplemented by radiographs and micro-CT images. This stimulating work discusses the functional morphology of feeding, the attachment of teeth, and the relationship of tooth form to function, with each chapter accompanied by a comprehensive, up-to-date reference list. Following the descriptions of the teeth and dentitions in each class, four chapters review current topics with considerable research activity: tooth development; tooth replacement; and the structure, formation and evolution of the dental hard tissues. This timely book, authored by internationally recognized teachers and researchers in the field, also reflects the resurgence of interest in the dentitions of non-mammalian vertebrates as experimental systems to help understand genetic changes in evolution of teeth and jaws. Features more than 600 images, including numerous high-quality photographs from internationally-recognized researchers and world class collections Offers guidance on tooth morphology for classification and evolution of vertebrates Provides detailed coverage of the dentition of all living groups of non-mammalian vertebrates

COLLAGEN

STRUCTURE AND MECHANICS

Springer Science & Business Media Not only does this book provide a comprehensive review of current research advances in collagen structure and mechanics, it also explores this biological macromolecule's many applications in biomaterials and tissue engineering. Readers gain an understanding of the structure and mechanical behavior of type I collagen and collagen-based tissues in vertebrates across all length scales, from the molecular (nano) to the organ (macro) level.

WILD HARVEST

PLANTS IN THE HOMININ AND PRE-AGRARIAN HUMAN WORLDS

Oxbow Books Plants are fundamental to life; they are used by all human groups and most animals. They provide raw materials, vitamins and essential nutrients and we could not survive without them. Yet access to plant use before the Neolithic can be challenging. In some places, plant remains rarely survive and reconstructing plant use in pre-agrarian contexts needs to be conducted using a range of different techniques. This lack of visible evidence has led to plants being undervalued, both in terms of their contribution to diet and as raw materials. This book outlines why the role of plants is required for a better understanding of hominin and pre-agrarian human life, and it offers a variety of ways in which this can be achieved. Wild Harvest is divided into three sections. In section 1 each chapter focuses on a specific feature of plant use by humans; this covers the role of carbohydrates, the need for and effects of processing methods, the role of plants in self-medication among apes, plants as raw materials, and the extent of evidence for plant use prior to the development of agriculture in the Near East. Section 2 comprises seven chapters which cover different methods available to obtain information on plants, and the third section has five chapters, each covering a topic related to ethnography, ethnohistory, or ethnoarchaeology, and how these can be used to improve our understanding of the role of plants in the pre-agrarian past.

TOOTH ENAMEL: FRONTIERS IN MINERAL CHEMISTRY AND BIOCHEMISTRY, INTEGRATIVE CELL BIOLOGY AND GENETICS

Frontiers Media SA "Tooth Enamel: Frontiers in Mineral Chemistry and Biochemistry, Integrative Cell Biology and Genetics" incorporates the proceedings of the 9th International Enamel Symposium (Enamel 9) hosted in the UK and chaired by Professor Jennifer Kirkham and Professor Ariane Berdal. The topic covers cellular and molecular aspects of the development, pathology, evolution and repair or regeneration of dental enamel. The original research papers and reviews will be of interest to all enamel and biomineralization researchers. Clinicians will find up-to-date thinking and opinion on the aetiology of enamel pathologies and their potential future treatment via novel strategies for preventing, repairing and regenerating enamel.

ADVANCES IN CALCIUM PHOSPHATE BIOMATERIALS

Springer Science & Business Advances in Calcium Phosphate Biomaterials presents a comprehensive, state-of-the-art review of the latest advances in developing calcium phosphate biomaterials and their applications in medicine. It covers the fundamental structures, synthesis methods, characterization methods, and the physical and chemical properties of

calcium phosphate biomaterials, as well as the synthesis and properties of calcium phosphate-based biomaterials in regenerative medicine and their clinical applications. The book brings together these new concepts, mechanisms and methods in contributions by both young and “veteran” academics, clinicians, and researchers to forward the knowledge and expertise on calcium phosphate and related materials. Accordingly, the book not only covers the fundamentals but also open new avenues for meeting future challenges in research and clinical applications. Besim Ben-Nissan is a Professor of Chemistry and Forensic Science at the University of Technology, Sydney, Australia

EARLY HOMININ PALEOECOLOGY

University Press of Colorado An introduction to the multidisciplinary field of hominin paleoecology for advanced undergraduate students and beginning graduate students, Early Hominin Paleoecology offers an up-to-date review of the relevant literature, exploring new research and synthesizing old and new ideas. Recent advances in the field and the laboratory are not only improving our understanding of human evolution but are also transforming it. Given the increasing specialization of the individual fields of study in hominin paleontology, communicating research results and data is difficult, especially to a broad audience of graduate students, advanced undergraduates, and the interested public. Early Hominin Paleoecology provides a good working knowledge of the subject while also presenting a solid grounding in the sundry ways this knowledge has been constructed. The book is divided into three sections—climate and environment (with a particular focus on the latter), adaptation and behavior, and modern analogs and models—and features contributors from various fields of study, including archaeology, primatology, paleoclimatology, sedimentology, and geochemistry. Early Hominin Paleoecology is an accessible introduction into this fascinating and ever-evolving field and will be essential to any student interested in pursuing research in human paleoecology. Additional Contributors: David Braun Beth Christensen David J. Daegling Crag Feibel Fred E. Grine Clifford Jolly Naomi E. Levin Mark A. Maslin John Mitani Jay Quade Amy L. Rector Jeanne Sept Lillian M. Spencer Mark Teaford Carol V. Ward Katy E. Wilson

MASTICATION ROBOTS

BIOLOGICAL INSPIRATION TO IMPLEMENTATION

Springer Mastication Robotics: Biological Inspiration to Implementation is the first book in the special field of masticatory robots for applications including foods texture analysis, dental training and speech therapy. It is a collection of the efforts we have made in the field at Massey University, New Zealand. The book provides a thorough review of the human masticatory system, and presents principles, analysis, design, simulations

and experiments of a number of masticatory robots developed by the authors. This book is a valuable reference for researchers, engineers and graduates in the field of robotics, mechatronics, automatic control, artificial intelligence and food sciences.

SOUTH AMERICAN PRIMATES

COMPARATIVE PERSPECTIVES IN THE STUDY OF BEHAVIOR, ECOLOGY, AND CONSERVATION

Springer Science & Business Media This will be the first time a volume will be compiled focusing on South American monkeys as models to address and test critical issues in the study of nonhuman primates. In addition, the volume will serve an important compliment to the book on Mesoamerican primates recently published in the series under the DIPR book series. The book will be of interest to a broad range of scientists in various disciplines, ranging from primatology, to animal behavior, animal ecology, conservation biology, veterinary science, animal husbandry, anthropology, and natural resource management. Moreover, although the volume will highlight South American primates, chapters will not simply review particular taxa or topics. Rather the focus of each chapter is to examine the nature and range of primate responses to changes in their ecological and social environments, and to use data on South American monkeys to address critical theoretical questions in the study of primate behavior, ecology, and conservation. Thus, we anticipate that the volume will be widely read by a broad range of students and researchers interested in prosimians, New World monkeys, Old World monkeys, apes, humans, as well as animal behavior and tropical biology.

ORAL PROCESSING AND CONSUMER PERCEPTION

Royal Society of Chemistry This is the first book for some years that provides a comprehensive overview of food oral processing. It includes fundamental chapters at the beginning of each section to aid the understanding of the later more specific oral processing chapters. The field is rapidly developing, and the systems researched in the context of food oral processing become increasingly complex and therefore the fundamental sections include information on how to build complex food systems. The main coverage includes the biomechanics of swallowing, the biophysics of mouthfeel and texture as well as the biochemistry of flavours and how food microstructures can be manipulated. It contains up-to-date research findings, looking at consumer preferences and the response to these preferences by food process technologists and those developing new foods. The book will be of interest to postgraduate students and researchers in academia and industry who may be from very diverse backgrounds ranging from food process engineers to functional food developers and professionals concerned with swallowing and taste

disorders.

PRIMATE ANATOMY

AN INTRODUCTION

Elsevier This book is unlike any other work on primates: it systematically reviews the biology of all living primates, including humans. It describes their bio-geographical information and provides crucial data pertaining to their body size, fur coloration external distinguishing features, habitat and basic life strategies. Now in its third edition, **Primate Anatomy** discusses species that are new to science since the last edition with details concerning anatomical features among primates that were re-discovered. New research in molecular primatology is also included due to recent relevant findings in molecular biology in accordance with new technology. The basics of biological taxonomy are introduced, along with photographs of all major groups. Important new and controversial issues make this edition key for every primatologists, anthropologist, and anatomist. Offers up-to-date reviews of molecular primatology and primate genomics Concentrates on living primates and their overall biology Discusses the genetic connection of function where known Introduces primate genomics for the first time in a textbook Provides instructive and comprehensive review tables Includes many unique, novel and easily understandable illustrations

BIOLOGY OF THE SAUROPOD DINOSAURS

UNDERSTANDING THE LIFE OF GIANTS

Indiana University Press Summarizes the latest research findings on the biology of the sauropod dinosaurs, the largest land-living animals, and covers nutrition, physiology, skeletal structure, and growth.

ECOLOGY, CONSERVATION AND MANAGEMENT OF WILD PIGS AND PECCARIES

Cambridge University Press Wild pigs inhabit vast areas in Europe, Southern Asia and Africa, and have been introduced in North and South America, while feral pigs are widespread in Australia and New Zealand. Many wild pig species are threatened with extinction, but Eurasian wild boar populations, however, are increasing in many regions. Covering all wild pig and peccary species, the Suidae and Tayassuidae families, this comprehensive review presents new information about the evolution, taxonomy and domestication of wild pigs and peccaries alongside novel case studies on conservation activities and management. One hundred leading experts from twenty five countries synthesise understanding of this group of species; discussing current research, and gaps in the knowledge of researchers, conservation biologists, zoologists, wildlife

managers and students. This beautifully illustrated reference includes the long history of interactions between wild pigs and humans, the benefits some species have brought us and their role and impact on natural ecosystems.

PRIMATE ECOLOGY AND CONSERVATION

OUP Oxford The study of primate ecology and conservation has advanced rapidly in recent years. This practical volume brings together a group of distinguished primate researchers to synthesize field, laboratory, and conservation management techniques for primate ecology and conservation. The synthesis focuses on new and emerging field methods alongside a comprehensive presentation of laboratory and data analysis techniques, as well as the latest methods for determining conservation status and conservation management. This book's particular focus is on innovative ways to study primates in a changing world, including emerging methods such as non-invasive genetic techniques and advanced spatial modeling. In addition to synthesizing field and lab methods, the authors also discuss data interpretation, as well as important guiding questions and principles for students and researchers to consider as they plan research projects in primate ecology and conservation such as: how to choose a field site, acquire research permits, connect with local authorities, communities and researchers, and many other considerations. Although three chapters are dedicated to conservation methods, consideration of conservation status and threats to primate populations are considered throughout this volume where appropriate. This latest publication in the Techniques in Ecology and Conservation Series aims to provide a practical empirical reference text with an international scope, appropriate for graduate students, researchers, and conservation professionals across the globe.

SOLID BIOMECHANICS

Princeton University Press Solid Biomechanics is the first book to comprehensively review the mechanical design of organisms. With a physical approach and a minimum of mathematics, the textbook introduces readers to the world of structural mechanics and sheds light on the dazzling array of mechanical adaptations that link creatures as dissimilar as bacteria, plants, and animals. Exploring a wide range of subjects in depth, from spider silks and sharkskin to climbing plants and human food processing, this immensely accessible text demonstrates that the bodies of animals and plants are masterpieces of engineering, enabling them to survive in a hostile world. The textbook describes how organisms construct materials from limited components, arrange materials into efficient structures that withstand different types of stresses, and interact mechanically with their environment. Looking at practical and historical aspects of the subject, the book delves into how the mechanics of

organisms might be applied to other engineering scenarios and considers the ways structural biomechanics could and should develop in the future if more is to be learned about the form and function of organisms. **Solid Biomechanics** will be useful to all those interested in how organisms work, from biologists and engineers to physicists and students of biomechanics, bionics, and materials science. The first comprehensive review of the structural mechanics of organisms Introduces the subject using a physical approach involving minimal mathematics Three complementary sections: materials, structures, and mechanical interactions of organisms Links the dazzling array of mechanical adaptations seen in widely differing organisms Practical and historical approach shows how mechanical adaptations have been discovered and how readers can perform their own investigations

FOSSIL PRIMATES

Cambridge University Press A unique reconstruction of the paleobiology of fossil non-human primates and their key role in inferring evolutionary processes on earth.

NEW GEOSPATIAL APPROACHES TO THE ANTHROPOLOGICAL SCIENCES

University of New Mexico Press Spatial analysis reaches across all the subdisciplines of anthropology. A cultural anthropologist, for example, can use such analysis to trace the extent of distinctive cultural practices; an archaeologist can use it to understand the organization of ancient irrigation systems; a primatologist to quantify the density of primate nesting sites; a paleoanthropologist to explore vast fossil-bearing landscapes. Arguing that geospatial analysis holds great promise for much anthropological inquiry, the contributors have designed this volume to show how the powerful tools of GIScience can be used to benefit a variety of research programs. This volume brings together scholars who are currently applying state-of-the-art tools, techniques, and methods of geographical information sciences (GIScience) to diverse data sets of anthropological interest. Their questions crosscut the typical "silos" that so often limit scholarly communication among anthropologists and instead recognize a deep structural similarity between the kinds of questions anthropologists ask, the data they collect, and the analytical models and paradigms they each use.

FRACTURE AND LIFE

World Scientific This book is an interdisciplinary review of the effect of fracture on life, following the development of the understanding of fracture written from a historical perspective. After a short introduction to fracture, the first section of the book covers the effects of fracture on the evolution of the Earth, plants and animals, and man. The second section of

the book covers the largely empirical control of fracture from ancient times to the end of the nineteenth century. The final section reviews the development of fracture theory as a discipline and its application during the twentieth century through to the present time.

CONVERGENT EVOLUTION IN STONE-TOOL TECHNOLOGY

MIT Press Scholars from a variety of disciplines consider cases of convergence in lithic technology, when functional or developmental constraints result in similar forms in independent lineages. Hominins began using stone tools at least 2.6 million years ago, perhaps even 3.4 million years ago. Given the nearly ubiquitous use of stone tools by humans and their ancestors, the study of lithic technology offers an important line of inquiry into questions of evolution and behavior. This book examines convergence in stone tool-making, cases in which functional or developmental constraints result in similar forms in independent lineages. Identifying examples of convergence, and distinguishing convergence from divergence, refutes hypotheses that suggest physical or cultural connection between far-flung prehistoric toolmakers. Employing phylogenetic analysis and stone-tool replication, the contributors show that similarity of tools can be caused by such common constraints as the fracture properties of stone or adaptive challenges rather than such unlikely phenomena as migration of toolmakers over an Arctic ice shelf. Contributors R. Alexander Bentley, Briggs Buchanan, Marcelo Cardillo, Mathieu Charbonneau, Judith Charlin, Chris Clarkson, Loren G. Davis, Metin I. Eren, Peter Hiscock, Thomas A. Jennings, Steven L. Kuhn, Daniel E. Lieberman, George R. McGhee, Alex Mackay, Michael J. O'Brien, Charlotte D. Pevny, Ceri Shipton, Ashley M. Smallwood, Heather Smith, Jayne Wilkins, Samuel C. Willis, Nicolas Zayns

ROUGH AND TUMBLE

AGGRESSION, HUNTING, AND HUMAN EVOLUTION

Univ of California Press Travis Rayne Pickering argues that the advent of ambush hunting approximately two million years ago marked a milestone in human evolution, one that established the social dynamic that allowed our ancestors to expand their range and diet. He challenges the traditional link between aggression and human predation, however, claiming that while aggressive attack is a perfectly efficient way for our chimpanzee cousins to kill prey, it was a hopeless tactic for early human hunters, who—in comparison to their large, potentially dangerous prey—were small, weak, and slow-footed. Technology that evolved from wooden spears to stone-tipped spears and ultimately to the bow and arrow increased the distance between predator and prey and facilitated an emotional detachment that allowed hunters to stalk and kill large game. Based on studies of humans and of other primates, as well as on fossil and

archaeological evidence, Rough and Tumble offers a new perspective on human evolution by decoupling ideas of aggression and predation to build a more realistic understanding of what it is to be human.