

THE COLORADO PLATEAU II: BIOPHYSICAL, SOCIO-ECONOMIC, AND CULTURAL RESEARCH. *Based on a conference held in Flagstaff, Arizona, 5–8 November 2003.*

*Edited by Charles van Riper III and David J Mattson. Tucson (Arizona): University of Arizona Press. \$35.00. xiii + 448 p; ill.; index. ISBN: 0-8165-2526-9. 2005.*

Poet Gary Snyder wrote “nature is not a place to visit, it is home.” Charles van Riper III and David J Mattson are wonderful collectors of stories (research) about their home. The editors, and their many co-authors, realize that the preservation of native species and ecosystems requires a sound basis in peer-reviewed science. This is the seventh such volume in the past dozen or more years that discusses research and resources management on the Colorado Plateau. It contains 29 independent chapters organized into four sections, including socioeconomic (four chapters), biological (18 chapters), cultural (four chapters), and biophysical resources (three chapters). Although skewed toward biological resources, an underlying theme of most of the volume is the tying of social and economic criteria to the wise management of natural resources.

The book gets off to a fast start with a chapter by Hecox and Holmes, which proves that the rapidly changing economy of the region is linked to the development of lower-paying service jobs driven by tourism, which in turn, is drawing from the environment. Hampton et al. provide a solid conceptual design for a decision support system, guided by managers, but driven by stakeholders, to set priorities for fire management in this fire prone area. The lengthy, but sometimes uneven section on biological resources begins with several chapters on forest structure restoration, indirectly emphasizing the enormous impacts of logging, grazing, and fire suppression (i.e., modern land uses) on historic landscapes. A mix of taxa specific studies follow, like pieces of a larger jigsaw puzzle. There is too little discussion about cultural resources in a regional sense—I wanted to see a synthesis paper in addition to the site-specific examples offered. I did not like the suggested protocol for rapid assessment of southwestern stream-riparian ecosystems offered by Stevens et al. because it was based on expert opinion and many qualitative, subjective categories.

All in all, I recommend the book for anyone interested in the Colorado Plateau. I know of few other areas on the planet where research results are so frequently gathered and inexpensively shared—thanks to van Riper and Mattson who call this place home.

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ENVIRONMENTAL BIOTECHNOLOGY. *Second Edition.*

*By Alan Scragg. Oxford and New York: Oxford University Press. \$54.50 (paper). viii + 447 p; ill.; index. ISBN: 0-19-926867-3. 2004.*

This book is a good introduction to several topics in environmental biotechnology and includes basic concepts in microbiology, bioremediation, biofuels, and biotechnology as applied to agriculture and marine environments. To put things in perspective, the author provides a chapter on specific topics that singles out three prominent case studies of environmental pollution, and the subsequent biological processes employed in their treatment or containment. Scragg uses a simple, lucid style to explain basic concepts and theories. The high number of graphics used (figures and tables) greatly complement the text and provide a good aid in understanding the subject matter presented. At times, however, the explanation is too simplistic and the depth of the subject in discussion is fairly shallow. For example, when presenting bioremediation in Chapter 5, there is no mention of anaerobic microbial processes that are involved in bioremediation of petroleum hydrocarbons and organics, which in reality is of great significance in contaminated environments.

The book can serve as a good basic reference when introducing concepts of environmental microbiology and biotechnology to undergraduates who have not previously been exposed to this subject.

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## NEURAL SCIENCES

FROM MONKEY BRAIN TO HUMAN BRAIN: A FYSSEN FOUNDATION SYMPOSIUM. *Based on a symposium held in St-Germain-en-Laye, 20–23 June 2003.*

*Edited by Stanislas Dehaene, Jean-René Duhamel, Marc D Hauser, and Giacomo Rizzolatti. A Bradford Book. Cambridge (Massachusetts): MIT Press. \$55.00. xvii + 400 p + 22 pl; ill.; index. ISBN: 0-262-04223-1. 2005.*

The question of which selective pressures shaped the human mind intrigue many in comparative and evolutionary psychology, neuroscience, evolu-

tionary anthropology, and even some scholars of ethics and law. However, scenarios for the evolution of the brain and mind are often not much more than speculative storytelling. The near crippling lack of comparative data on cortical structure and function in chimpanzees and other great apes (our endangered close relatives) prevents interesting comparisons to humans. Much of the available comparative data are limited to visual cortex organization in laboratory primates: macaques, night monkeys, and galagoes. Finding new approaches to investigate the neural structures that make the human mind unique was the impetus for the 2003 Fyssen Symposium, a comparative perspective on cortical organization and structure, which led to the generation of this interesting reviewed volume.

Contributed chapters range in topics from fossil hominid endocasts to the neurofunctional basis of macaque tool-use learning, with other chapters that cover sociobiological models for the evolution of altruism, and epigenetic and ontogenetic influences on cortical structure. Despite, or possibly because of, the breadth of topics broached in this book, it cannot be said that there is a strong theme that underlies all of the contributions to this symposium volume. Neither the editors nor the contributors can be blamed for the thematic pandemonium of this book; it instead reflects the chaotic state of the comparative neuroscience of primates. The strength of this volume lies in the reviews of new methods, a number of which hold tremendous promise for generating comparative functional databases on many species, including ones not previously available for study. Especially interesting in this regard is David van Essen's lucid review of his laboratory's work on developing surface-based cortical maps for interspecific studies of functional specialization. Kourtzi and Logothetis also contribute a very accessible synthesis and review of combined blood-oxygenation-level-dependent contrast methods with functional MRI to investigate cortical areal specialization, which may open up studies of cortical function across many taxa. However, the major weakness of *From Monkey Brain to Human Brain* is the lack of synthesis or review provided by the editors, which is understandable given that such a task would be equivalent to summarizing a large swath of the field of comparative neuroscience.

Overall, the topics covered in this book might be both too broad and too detailed to be useful to many, but there is enough of interest to warrant browsing through the volume when you spot it during your next trip to the library.

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COGNITIVE NEUROSCIENCE AND NEUROPSYCHOLOGY. *Second Edition.*

By Marie T Banich. Boston (Massachusetts): Houghton Mifflin. \$113.56. xx + 535 p; ill.; index. ISBN: 0-618-12210-9. 2004.

This second edition discusses the relevance of computer simulations in modeling cognitive and emotional disorders and integrates cognitive neuroscience (especially the computational modeling of cognitive and emotional disorders) with current neuropsychological research and clinical studies. The book includes eight pages of color-enhanced neuroimaging scans, color-coding of all illustrations throughout the text, and a discussion of the Human Genome Project and its relevance for understanding cognitive disorders such as Alzheimer's disease. The author has rewritten most of the chapters to reflect ongoing developments since the first edition. The book also has a companion website that provides a list of quiz questions.

Chapters 1 through 4 (Part I) cover fundamentals of brain structure and function (at the systems level), neuroimaging studies, and localization of cognitive functions. Part II (Chapters 5 to 12) examine in greater detail the neurology associated with motor functions, object recognition, executive functions, and emotions. Chapters 13 and 14 respectively examine neural plasticity throughout the life cycle and generalized cognitive disorders (e.g., the various dementias) in comparison with the discussion of more specific disorders considered in Part II (e.g., visual and auditory agnosias, or hemi-neglect).

The organization of the volume includes a discussion of the neural circuitry thought to be associated with specific mental functions; how this supports the mental function in question; an introduction of relevant clinical syndromes; and implications for understanding the relation among minds, brains, and behavior. Pluses of this second edition include color-enhanced diagrams throughout the text; the very detailed Table of Contents both at the beginning of the book and before each chapter; an extensive glossary and a list of references; and a clear discussion of relatively well-documented cognitive disorders, as well as more difficult issues (e.g., what do clinical symptoms tell us about the underlying neurology?).

What is more problematic is that, ostensibly, this volume tries to blend cognitive neuroscience and clinical neuropsychology, noting that cognitive neuroscientists "attempt to understand how the brain is organized to perform specific computations" (p 4). However, the author never really does address the nature of these computations at, say, the network or systems levels of analysis (e.g., how do brains compute the appropriate excitatory or