

## Books Received

**CHORDOMAS AND CHONDROSARCOMAS OF THE SKULL BASE AND SPINE.** 2003. Edited by Griff Harsh. Published by Thieme. 384 pages. C\$246 approx.

**EMERGENT MANAGEMENT OF TRAUMA.** 2001. By Thomas A. Scaletta, Jeffrey J. Schaidler. Published by McGraw-Hill. 619 pages. C\$61 approx.

**MAGNETIC RESONANCE IMAGING IN STROKE.** 2003. Edited by Stephen Davis, Marc Fisher, Steven Warach. Published by Cambridge University Press. 266 pages. C\$170 approx.

**MAGNETIC SOURCE IMAGING OF THE HUMAN BRAIN.** 2003. Edited by Zhong-Lin Lu, Lloyd Kaufman. Published by Lawrence Erlbaum Associates. 406 pages. C\$62 approx.

**MIND, BRAIN AND LANGUAGE. MULTIDISCIPLINARY PERSPECTIVES.** 2003. Edited by Marie T. Banich, Molly Mack. Published by Lawrence Erlbaum Associates. 394 pages. C\$55 approx.

**NEUROLOGIC EMERGENCIES. A SYMPTOM-ORIENTED APPROACH, 2ND EDITION.** 2003. By Greg L. Henry, Andy Jagoda, Neal E. Little, Thomas R. Pellegrino. Published by McGraw Hill. 346 pages. C\$82 approx.

**NEURONAL SUBSTRATES OF SLEEP AND EPILEPSY.** 2003. By Mircea Steriade. Published by Cambridge University Press. 522 pages. C\$170 approx.

**NEUROSURGERY ORAL BOARD REVIEW.** 2003. By Jonathan S. Citow, Lydia M. Johns. Published by Thieme. 208 pages. C\$55 approx.

**PERCEPTUAL ORGANIZATION IN VISION. BEHAVIORAL AND NEURAL PERSPECTIVES.** 2003. Edited by Ruth Kimchi, Marlene Behrmann, Carl R. Olson. Published by Lawrence Erlbaum Associates. 475 pages. C\$80 approx.

**PLASTICITY IN THE HUMAN NERVOUS SYSTEM. INVESTIGATIONS WITH TRANSCRANIAL MAGNETIC STIMULATION.** 2003. Edited by Simon Boniface, Ulf Ziemann. Published by Cambridge University Press. 316 pages. C\$135 approx.

**SLEEP AND DREAMING. SCIENTIFIC ADVANCES AND RECONSIDERATIONS.** 2003. Edited by Edward F. Pace-Schott, Mark Solms, Mark Blagrove, Stevan Harnad. Published by Cambridge University Press. 360 pages. C\$46 approx.

**SURGICAL TECHNIQUES FOR THE SPINE.** 2003. By Thomas R. Maher, Andrew A. Merola. Published by Thieme. 304 pages. C\$235 approx.

## Book Reviews

**TEXTURE OF THE NERVOUS SYSTEM OF MAN AND THE VERTEBRATES, VOLUME III.** 2002. Edited by Pedro Pasik and Tauba Pasik. Published by Springer Wien New York. 663 pages. C\$266 approx.

I find reading Cajal as rewarding as reading Darwin. One finds the same eager search for discovery, as these true pioneers navigate a new world using their tremendous skill for observing nature and interpreting what they see. If in Darwin we find the first, labored but clear, glimpses of evolution as the fundamental principle of biology, in Cajal we watch the emergence of the neuronal doctrine as the basis of modern neuroscience. The idea against which Cajal fought, one in which all neurons were interconnected through cytoplasmic bridges and thus constituted a single cell miasma, is as incompatible with the development of basic and clinical neuroscience as creationism is inconsistent with genomic data, and astronomy with the similarly intuitive belief that the sun revolves around the earth. However, for the busy professional reader, there were three obstacles to enjoying Cajal's work: the first is that one would like to be certain that the information acquired has not been corrected along the development of neuroscience during the 20th century. The second is that the quality of the illustrations in most currently available editions is, to put it kindly, abysmal. The third is that Cajal's work was originally published in Spanish and French, and many current workers in basic and clinical neuroscience are not familiar with these languages. The edition of Pasik and Pasik addresses all three problems. It is much more than a modern translation. It provides

comments to view Cajal writings in the light of current knowledge. This implies often supplying the contemporary nomenclature of the structures described by Cajal, sometimes adding information obtained through electron microscopic and labeling techniques to which Cajal had no access, and occasionally correcting errors. The illustrations, obtained by digging out the original drawings, are superb, and replace the need for the leaps of faith one had to have with the previous editions. Finally, the translation renders in good English the original Spanish and French texts that are combined as the source. The book will make for an enjoyable and profitable quiet reading, and is a wonderful gift to any neuroscientist.

*David G. Munoz  
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**CORTEX AND MIND.** 2003. By J.M. Fuster. Published by Oxford University Press. 294 pages. C\$87.50 approx.

What I liked about this book is that it made me look at the brain and its functions in a light that we don't often direct toward neuroscientific issues. In particular, Dr. Fuster presents new insights into how the brain is organized functionally.

At first glance, the focus of the book appeared to be on the brain-mind dichotomy, the age-old dilemma with which most neuroscientists grapple, particularly as the neuroscientist moves along in his/her academic life. In fact, the preface of the book at first strongly intimated that this was the focus. Fuster states, "My ultimate objective is to substantiate the correlations between a neural

order and a phenomenal order, the isomorphism of cortex and mind." (p. xi). However, the interest for me was not the potential solution to the duality, but the methods which Fuster proposed as necessary to study the question. While the approach may prove fruitful in understanding "Cortex and Mind", its relevance for many may be the emphasis on the approach itself.

The book is very well-organized in a classic style of presentation. The major concepts are presented early in the book. This has several benefits such as repetitive learning and the ability of the reader to link the different details. At the beginning of each chapter, there is a brief overview of the story to that point in the book, linked with an introduction to the current chapter. Within each chapter there are summaries of sections and of the chapter itself.

The approach is the transition from a modular model of brain mechanisms to the network model of cognition. In the two chapters after the introduction of the concepts, Fuster details how the cortical networks develop (since these are the foundation of cognitive operations) and then describes how the cortical networks (labelled "cognits") function. How the major cognitive functions such as perception, memory, attention, language and intelligence relate to the proposed organization is described in the central chapters of the book. There is of course an obligatory conclusion relating the ideas to consciousness.

Chapter 3, on the "Functional Architecture of the Cognit", deserves mention of its own, since it presents many of the core concepts Fuster proposes. Connectionist models and Hebbian principles are key elements in understanding how brain networks develop and work. The well-crafted chapter begins with the basic structure of knowledge in connectionist models. While a type of modularity is accepted, it is the network that is key: "Each junction or node in those networks will not represent a specific item of personal experience but instead mediate the association between several items that make up the experience" (p. 67). An important aspect of the network is the hierarchical organization. This hierarchy exists within and across cortical domains (e.g., perception in posterior cortex, and action in the frontal cortex). At the end of the chapter, Fuster takes the concept one step further by warning of possible misconceptions of the general theme of "two tiers of stacked cognits of increasing breadth as we ascend in either hierarchy" (p. 80). He introduces the term "heterarchical" to indicate that networks can span levels. Cognits are not discrete and isolated cortical networks. Here is where the dynamic nature of cognition is emphasized: "A more appropriate view is that of a network with relatively firm connections at the core, made of repeatedly enhanced synaptic contacts, as well as weakly enhanced and noncommitted contacts 'around the edges'" (p. 82). There is a durable core, and a more plastic periphery. This is a wonderful way of encapsulating the more fixed nature and dynamic plasticity of cognitive and affective processes. The clinical implications are clear: one must think of the effects of brain damage or change (including aging) in relation to the focal effects, the impact on the "edges", and the undoing of connections.

One could conclude that this is old wine in new skins. But it is not that – it is indeed a better way of thinking about brain functioning. The book is not complete. There is little mention of mathematical models such as path analysis that have transformed the study of cognitive and affective networks. This inclusion would have demonstrated how the approach he is advocating can be, and is, applied. This does not detract from the value of Professor Fuster's

contribution – he did state that his objective was to address the matter not from the cognitive psychology or computer science side, but from the brain side. He has achieved his goal admirably. This is a thought provoking work. It is a book worth reading if you are at all interested in how the brain works.

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**PROGNOSIS OF EPILEPSIES.** 2003. Published by John Libbey Eurotext. Edited by Pierre Jallon, Anne Berg, Olivier Dulac, Allen Hauser. 344 pages. C\$180 approx.

In an age of neurological and neurosurgical interventions the study of disease prognosis may be viewed with peripheral interest. Yet, conveying accurate information about the expected course of illness is as important as determining the diagnostic or therapeutic interventions that are best suited for an individual patient with epilepsy. Indeed, it can be argued that the prognosis determines the nature of interventions. At the same time, high quality studies about prognosis are not simple. They require the assembly of representative cohorts of patients at an early stage of their illness, following them in a systematic manner for a sufficiently long time, and assessing outcomes of interest in an unbiased manner. Prognosis studies are particularly challenging when dealing with chronic illnesses which, like epilepsy, have a wide variety of etiologies, clinical expression, and clinical course. A book dedicated to the prognosis of epilepsy is welcome.

Edited by Pierre Jallon, this 327-page volume is the result of a symposium devoted to the prognostic aspects of epilepsy, held in 2002. The target readership includes epidemiologists and clinicians interested in the topic. The associate editors and chapter contributors are experts in the clinical and epidemiological aspects of epilepsy and present a wide range of socio-demographic perspectives including those from Europe, North America, Latin America, Africa, Scandinavia, Finland and Iceland.

The book is organized into two sections. Section one will appeal to epidemiologically inclined readers. It discusses methodological issues of studies about prognosis (three chapters), and describes specific cohort studies with different designs looking at the prognosis of epilepsy in various parts of the world (11 chapters), as well as studies of prognosis after surgery for temporal and frontal lobe epilepsy (two chapters). I enjoyed reading section one. It illustrates the strengths and weaknesses of different study designs, and it helps interested readers understand why different studies yield different answers to the same question. Because of its focus, those looking for answers to specific clinical questions may find this an arduous section.

The smaller section two focuses on clinical aspects. Its 13 chapters address the prognosis of individual epilepsy syndromes, and non-convulsive and convulsive status epilepticus. The chapters vary in their readability and organization, but all present prognostic data in light of two main aspects. One pertains to the difficulties imposed by the existing classification and description of epilepsy syndromes. The other pertains to the available evidence, which is sometimes limited, and often of variable quality and methodology. Overall, this section provides readers with most of the necessary information about prognosis for epileptic syndromes.

There is some room for improvement. Some clinical chapters