

brainstem response is also well known. About a decade ago his attention shifted to tinnitus, hyperacusis, and chronic pain. Recently his work has become more clinical in orientation, generally less mechanistic, and useful at the level of undergraduate or early graduate teaching.

This book is organized into six chapters; an opening chapter on neural plasticity followed by a chapter on the anatomy, physiology, pathology and pathophysiology of nerves. The remaining four chapters cover sensory systems, pain, movement disorders and cranial nerves. Each of those chapters deals with the anatomy, disorders and pathophysiology for each of the chapter topics. There are several important features in the book such as the functional role of non-classical pathways, the fact that descending pathways can modulate the neural traffic in ascending pathways, inclusion of recent progress using transcranial magnetic stimulation, electrical stimulation, and microvascular decompression operations. A central theme to the book is that it is difficult to diagnose certain neuropathological disorders because the anatomical location of the physiological abnormality that causes the symptoms is often different from the anatomical location to which the symptoms are referred, and that hyperactive disorders such as tinnitus, paresthesia, vertigo as well as other disorders are caused by neural plastic changes to the system rather than the direct effects of an insult.

The use of the term neural plasticity is problematic because it has become like the term addiction, a term so blurred, its scientific value is nullified. People speak of addiction to drugs, addiction to sex, addiction to work, addiction to food and so on. These different examples of repetitive behaviour may have some mechanisms in common, but they may not. Hence use of the common term is potentially very misleading. Neural plasticity has become a short form for any and all changes in brain function including those mediated by non-neuronal glial cells. The current use of the term neural plasticity encompasses developmental trajectories, those processes associated with learning, memory, and experience, including drug taking, neuropathological states themselves and the consequences of damage. Neural plastic mechanisms include, but are not limited to, neurogenesis, dendritic hyper- and hypo-trophy, synaptic growth and regression, the unmasking of dormant synapses, axonal sprouting, the myriad ways to alter neurotransmitter and hormone levels, receptor modulation, channel insertion or inactivation, phosphorylation of intracellular messengers and intracellular cascades, gene transcription, protein synthesis, post-translational modifications, and apoptosis. So when someone says neural plasticity is involved they might as well say the brain is changing. This says nothing of value. Those of us who study behaviour understand that one or two word terms like innate, inborn, learned, or neural plasticity cannot be used as explanations for anything, and this is perhaps the biggest weakness of the book.

The book also contains an annoying amount of repetition; for instance in at least four separate locations in the book the author tells us that the distinction between pyramidal and extrapyramidal motor systems is no longer valid. While true, we only need to be told this once, maybe twice. Perhaps the most egregious error that I encountered is found on page 314. The author states that tolerance develops to deep brain stimulation and that "Deep brain stimulation...causes the expression of neural plasticity or the kindling phenomenon as it has been called". The kindling phenomenon is an example of brain sensitization that specifically refers to the progressive intensification of epileptiform activity

and/or seizure activity. Deep brain stimulation does not normally result in seizure activity and to the extent that tolerance to DBS occurs, it has nothing whatsoever to do with kindling. Unfortunately this book does not advance our understanding of the brain or its function but rather offers a superficial overview of neural plasticity and disorders of the nervous system. I will be choosing a different book for my graduate course.

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**GENERALIZED SEIZURES: FROM CLINICAL PHENOMENOLOGY TO UNDERLYING SYSTEMS AND NETWORKS. FIRST EDITION. 2006.** Edited by Edouard Hirsch, Frederick Andermann, Patrick Chauvel, Jerome Engel, Fernando Lopes da Silva. Published by John Libbey Eurotext Limited. 320 pages. Price C\$120.

This book is the second volume in the "Progress in Epileptic Disorders" book series, edited in collaboration with the journal "Epileptic Disorders" and published by John Libbey Eurotext. The book is the fruit of a workshop, designed as a discussion forum, with the participation of experts from all over the world. The book is divided into seven sections with a total of 18 chapters. The first section talks about potential definitions of generalized epilepsy. The second section offers a clinical and a physiopathological description of tonic seizures. The third section approaches absence seizures, describing mainly the physiopathological mechanisms. Section four describes some models of myoclonic epilepsy, physiopathology of these types of seizures and an interesting chapter regarding primary reading epilepsy. Section five reviews clinical and physiopathological aspects of primary versus secondary tonic-clonic seizures. Section six contains only one chapter and reviews the cortical and centrencephalic theories. Section seven has an interesting chapter about why some antiepileptic drugs control certain types of seizures and aggravate others. Finally section eight has a chapter criticizing the available systems of seizures classification.

This is not the first book regarding primary generalized epilepsy; I think that the main purpose of the book was to create controversy about the current evidence regarding this type of seizure disorder. The purpose of the panel was to review the current evidence on primary generalized epilepsy emphasizing the new advances including clinical, EEG and imaging aspects. Secondly the book creates controversy about a very well known dogma in epilepsy. In recent years we have increasing evidence that some of the syndromes that classically have been classified as generalized epilepsy may have focal expression. One of the chapters that exemplify very well this controversy is the chapter regarding primary reading epilepsy. This rare type of epilepsy has been recognized for years as a generalized type of epilepsy, although the clinical expression and the advances in the imaging techniques shows that it may show focal expression. This chapter is very interesting and highly recommended for readers. Another useful chapter is the one that talks about the worsening of some type of seizures with specific medications. This is an important topic in epilepsy and is well reviewed in the book. Section two on tonic seizures is also very valuable. The three chapters in this section review different aspects of tonic seizures and represent a good section in the book. The book's final chapter is a good review of the

problems with presently available seizure classification systems. The problems with the classifications proposed by the ILAE represent a continuous debate over the years and these are well exposed in the chapter. The limits between generalized and focal epilepsy will alter in the future and continuous changes could be expected. Section three reviews clinical and physiopathological mechanisms of absence seizures. The section is good but there are many international reviews about this topic and it is not the dominant section of the book.

I strongly recommend the book but I would like to remark that the content is highly specialized and probably is more suited for physicians who continuously evaluate patients with epilepsy or interested people working in epilepsy programs.

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**ATLAS OF NEUROSURGICAL TECHNIQUES: BRAIN.** 2006. By Laligam N. Sekhar, Richard G. Fessler. Published by Thieme. 1074 pages. Price C\$405.

This neurosurgical operative atlas is the first of a two-volume multi-authored treatise on cranial and spinal neurosurgery. Professors Sekhar and Fessler have assembled a stellar group of contributors to produce an atlas of unusual breadth and clarity. Topics in the volume on cranial surgery are grouped into sections on general microsurgical principles, aneurysms, arteriovenous malformations, tumors, cranial base lesions, surgery for epilepsy and functional disorders, craniocerebral trauma, hydrocephalus, infections, stereotactic radiosurgery, and endoscopy. All of the 91 chapters have been carefully edited and beautifully illustrated. The book is aesthetically appealing and maintains the high standards for which Thieme is known.

The chapters present contemporary techniques including intra-operative electrophysiological monitoring, sophisticated skull base approaches, endovascular therapy, endoscopy, minimally invasive surgery, and stereotactic approaches. Refreshingly, there are very few chapters that have been lifted or only slightly revised from earlier publications. Each chapter begins with an introduction, often including historical context, and progresses logically to indications, alternative approaches, anesthesia, positioning, anatomy, surgical techniques and nuances, and post-operative care. Case examples are appropriately selected and nicely illustrated. Complications and their avoidance are dealt with in practical and honest terms.

As the number of surgical texts and online publications is rapidly expanding, investment in these media should be based on quality, suitability, and value. At C \$405.00, Atlas of Neurosurgical Techniques: Brain is well worth the cost and will be a valued addition to the libraries of neurosurgical residents as well as experienced surgeons. It has been written by neurosurgical experts addressing the complex conditions and cutting edge techniques that represent the current state of the art.

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**THE PHYSIOLOGICAL BASIS AND QUANTUM VERSIONS OF MEMORY AND CONSCIOUSNESS.** 2006. By Arthur J. Hudson. Published by The Edwin Mellen Press, LTD. 220 pages. Price C\$130.

This book represents an easily read overview of central nervous system physiology as it relates to memory and consciousness written for the clinician in 13 chapters. The book is general in its concepts and well organized with good progression of the topics and references of all chapters relating back to the topic of memory and consciousness. It begins with a chapter on the evolution of the neural sciences with regard to achievements in the localization of the brain functions. The second chapter reviews the various neurons of the cerebral cortex including pyramidal cells and interneurons. The visual cortex is specifically addressed and the general cortical model reviewed. The third chapter reviews the properties of axons, dendrites and synaptic vesicles. There is specific discussion on gap junctions, glial cells and lipid rafts. The fourth chapter addresses resting and voltage-gated ion channels. Tables outlining the specific ion channels in neurons and normal ion concentrations are included. Channel subtypes are also discussed in some detail. Chapter five reviews excitatory neurotransmitters including the small molecules (acetylcholine, biogenic amines, amino acids and nucleotides), neuroactive peptides and gas molecules with a focus on glutamate receptors and gas molecules. The sixth chapter focuses on inhibitory neurotransmitters with discussion predominantly around GABA receptors. Chapter seven involves a review of the electrical behaviour of dendrites and includes discussion on the Rall Cable Theory, Hopfield-Brody Model and neural codes. The eighth chapter discusses axon targeting including neural development, Eph receptors and ligands, axonal growth and targeting and integrins. Chapter nine reviews protein signaling and networks and specifically discusses, G-proteins, second messengers (calcium, cAMP), protein complexes, Ras-MAPKs, CaM kinase II, protein-conducting channels and complex networks and network regulators. The tenth chapter discusses long-term potentiation and plasticity in neurons. Relationship to memory is discussed in some detail. Chapter eleven reviews the processing of memory. In particular the hippocampal formation, amygdala and prefrontal cortex are discussed. Basic mechanisms of memory and the consolidation and reconsolidation of memory are also reviewed. The twelfth section deals with the development of consciousness and discusses cortical/subcortical connections, sleep and wakefulness and memory as it is applied to consciousness. The final chapter discusses quantum brain models.

Overall, pages are small with fairly small print and there are several black and white illustrations. Information is generally concise and well written. Chapters end with concluding remarks and summaries.

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**EXAMINATION OF PERIPHERAL NERVE INJURIES - AN ANATOMICAL APPROACH.** 2006. By Stephen M. Russell. Published by Thieme. 178 pages. Price C\$60.

This pocketbook begins with the Foreword: "There are few things in medicine and surgery that give as much personal satisfaction as a well-done physical examination, which can localize a lesion and often identify its nature." This is absolutely true, as a