

and of executive functions (implicating lack of dorsolateral frontal involvement). This model appears to support an animal-based model of dreaming that hypothesizes "orientational" functions (interest, surprise, startle) for central PGO activity<sup>5,6</sup> much more than it does a model proposing PGO to be a random, chaotic process.<sup>3</sup>

Some minor, stylistic features of the work deserve mention because they reflect the author's general eye to detail. One is the generous use of tables to organize materials, be they collections of prior studies on a given theme, or sub-samples of patients from his own collection with similar symptoms. These tables allow the reader to easily size up the relative weight of evidence for a topic and to make easy comparisons between patient groups. A second noteworthy feature is a glossary of nosological terms which gives the less neuro-savvy reader easy access to definitions of highly specific terms used in the book (e.g., irremembrance, adynamia, anosognosia, etc).

Are there problems with this book? Yes, at least two that deserve mention, but neither of which is damaging enough to exclude the book from any reader's shelf. One is that most of the case descriptions and statistical analyses reported have nowhere first been published in peer-reviewed journals. Thus, the scientific value of most of the findings has not been established via the usual empirical channels and must remain uncertain. A second problem is that the author has not considered the most recent brain imaging studies of REM sleep and dreaming in his formulation of a dreaming model. Although these studies are consistent with his thinking on many points, on many others it is not an unfortunate oversight because of the potential value such studies will have in independently validating or failing to validate his ideas.<sup>4</sup>

In sum, Solms has produced a rare work that is as original and useful as it is comprehensive and well-organized. It is surely one of the most important books on dreaming to appear in the last 25 years, and by far *the* most important work on dream neuropsychology to have been published. The book will likely come to be considered essential reading for students of sleep medicine.

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explain the recent explosion in our knowledge concerning the trigeminal vascular system and the role of some of the newer serotonin agonists on this system.

The first chapter of the book is concerned with the history of migraine from Sumerian times to the growing understanding of the condition throughout the Renaissance, the Victorian era, and the 20th century. There is a chapter on the classification of headache, which attempts to make the 1988 International Classification of Headache more understandable and useable. The chapter on the practical pathophysiology of headache is well set out and clear with excellent diagrams and tables detailing the mechanisms of headache production. The section on physical examination is well covered, emphasizing the appropriate taking of the history and appropriate examination as it pertains to the likely causes of head pain. The red flag headaches are particularly clearly defined, while an approach to a diagnosis is described in an algorithm which is easy to follow. Ultimately, this book is more designed for the general physician and family doctor rather than neurologists.

Investigations for headache patients are well covered. The chapter on tension type headaches attempts to clarify a rather muddy area. There is some discussion of post traumatic and cervicogenic headaches, which is adequate in a general book like this. Migraine is dealt with in more detail with treatments adapted from standard guidelines. The use of prophylactic medication is dealt with in adequate detail, but I am not sure why Pizotifen, which is one of the most commonly prescribed medications in Canada and Europe, and Depakene, and Epival are lumped under "other medications". I would have thought that they deserved a more prominent place.

The section on cluster headache is comprehensive and includes discussions on pericarotid syndromes and indomethacin-responsive headache syndromes which, though rare, can be important diagnostic considerations.

Other chapters deal with cranial neuralgia and facial pain, headaches of cerebrovascular origin, headaches of inflammatory origin, headaches caused by drugs, headaches in women and headaches in the elderly.

In short this book is an extremely valuable addition to the headache literature. The only problem I had was with the CD ROM included with the book, which is basically the book on CD ROM. There is some information at the front of the book which helps one get into the CD ROM. However, if one is to search for any of the references using a Med-Line search engine, this has to be accessed separately from the CD ROM. It would have been admirable if the reference sections of the book could be accessed in full directly through Med-Line. This is probably wishful thinking.

Overall I congratulate the authors on an excellent effort to simplify a sometimes complicated subject.

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CRITICAL DECISIONS IN HEADACHE MANAGEMENT. 1st Edition. 1998. By R. Giammarco, J. Edmeads and D. Dodick. Published by B.C. Decker Inc. 192 pages. Price unavailable

This addition to the growing library of books about headache is particularly well presented. For example, there are extremely clear diagrams dealing with the pathophysiology of headache, which help

GENE THERAPY FOR NEUROLOGICAL DISORDERS AND BRAIN TUMORS. 1998. By E. Antonio Chiocca and Xandra O. Breakefield. Published by Humana Press. 458 pages. \$ C 175.50

Chiocca and Breakefield, two outstanding scientists with research efforts in gene therapy, have recruited an impressive array of neuro-oncologists to fashion the first comprehensive volume on gene therapy for neurological disorders and brain tumors.

The book is well organized, and nicely assembled with liberal use of clear diagrams, vector maps, tables, and where appropriate, novel data. There are three sections to the book: Part One deals with vectors and promoter systems; Part Two with neuro-oncology; and Part Three with disorders that affect the central nervous system (CNS) such as Parkinson's disease, stroke, and CNS storage diseases. The text begins with a description of retroviral vectors and their utility, including the use of regulatable promoters. The ability to regulate transgene expression with tissue or cell specificity by means of retroviruses is highly desirable, and the methodology of such systems is clearly described and well illustrated. As there are a number of clinical trials in progress today which utilize retroviral vectors for patients with brain tumors, this particular chapter gives exceptional background information for the interested reader. Subsequent chapters in Part One describe the advantages of using other vector systems such as adenoviral, HIV recombinant, adeno-associated viral, Epstein-Barr viral, and lentiviral vector. Each of these chapters is well balanced describing the potentials and pitfalls associated with each virus.

Of interest in this section, is a chapter on the HIV-1 amplicon. Replication of amplicon DNA in mammalian cells is mediated by the interaction of the HIV-1 sequences with proteins provided by the helper virus.

A chapter on the Epstein-Barr viral vectors is of interest because of the role that EBV plays in human disease such as lymphoma. The authors of this chapter have designed an efficacious, recombinant mini-EBV capable of expressing a thymidine kinase (TK) gene construct in EBV positive cells. As such, EBV vectors may be utilized in suicide gene therapy along with other vector types.

Interest has been accumulating recently in creating novel types of retroviral vectors derived from the human immunodeficiency virus type one (HIV-1). The lentiviruses are a group of viruses that cause slowly progressive disorders resulting in chronic degenerative disease, of which HIV is the best characterized member. As the infection of non-dividing cells is a distinct challenge for the retroviral vectors, the use of lentiviral vectors has been shown to lead to efficient *in vivo* delivery integration and long term expression of transgenes in non-mitotic cells such as neurons. However, a major issue with this form of transfer relates to biosafety, an area which is being investigated with great vigor. Part One concludes with a description of brain specific promoters which will enable cell specific expression of genes in glial cells and neurons. A comprehensive listing of the different genes which can be utilized in this fashion in the CNS is listed.

Part Two of the book is devoted to neuro-oncology, and begins with a review of current treatment modalities for brain tumors. This is followed by chapters of experimental and clinical gene therapies for brain tumors including a description of the potentials of tumor suppressor gene therapy using gene transfer of cell cycle regulators such as p53, p16, or the retinoblastoma protein. As one of the major problems which continues to plague all gene therapy strategies is tumor targeting, a chapter is devoted in Part Two to delivering genetic material to brain tumors by modification of the blood brain barrier through osmotic disruption. This has become a potentially useful and efficacious means by which tumors can be targeted with higher efficiency.

Part Three of the book discusses the feasibility of gene therapy for neurological disorders. The chapters are devoted to overcoming the aging and degenerative process, Parkinson's disease, stroke, Huntington's disease, pain and lysosomal diseases. For quite some

time, it has been recognized that gene therapy may be most appropriately applied to diseases caused by single gene defects as result from lysosomal diseases, but the chapters in Part Three dealing with gene therapy of Huntington's disease and Parkinson's are particularly well written and lucid.

This is an outstanding compendium of information for all neuroscientists alike, but especially those with an interest in neuro-oncology. The techniques described in the first part not only apply to brain tumors but can be utilized for the strategies involving complex neurological conditions as has been mentioned. This is the most comprehensive text to deal with the issues of gene therapy for neurological disorders and brain tumors.

Though in its infancy at present, gene therapy continues to capture the imagination of scientists and clinicians offering a ray of hope for diseases for which there is presently inadequate treatment. I predict that as this book rests in our libraries to serve as an authoritative text on gene therapy, we will shortly begin to see dramatic results from clinical trials which have been founded on the very principles of this book.

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MOLECULAR NEUROBIOLOGY OF PAIN. 1st Edition. 1997. Volume 9, IASP Series – "Progress of Pain Research and Management". Edited by David Borsook. Published by IASP Press. 369 pages. \$C98.80

This book is the ninth volume in the "Progress in Pain Research Management" series published by the International Association for the Study of Pain (IASP). The purpose of the series is to provide high quality, low cost publications relevant to the problem of pain. The ninth volume in this series, Molecular Neurobiology of Pain, certainly meets the high quality, low cost criteria and provides an outstanding summary of this broad, complex and rapidly growing body of knowledge.

The book is divided into five parts and encompasses 18 chapters. The five parts include developmental aspects of sensory neurons, neurobiology of inflammation, neurobiology of nerve injury, neurobiology of receptor/ion channels involved in pain transmission, and molecular aspects of the future. The book is based on an October 1996 conference on molecular aspects of the neurobiology of pain that focused mainly on molecular mechanisms in peripheral nerves. In order to round off the topic for the book, additional chapters were added to address molecular mechanisms of pain in the central nervous system.

While there is some variability in chapter quality, most chapters follow a very similar and helpful template: chapters begin by indicating what the purpose of the chapter is; the body of each chapter is divided into short sections, and each is titled; and almost all chapters end with an easily understood summary, along with conclusions for the chapter. An informal conversational style of writing helps to soften much of the sting of the dry, neurobiological rhetoric. A most interesting section in chapter six "Transduction and Excitability in Nociceptors: Dynamic Phenomenon", describes the mechanism of cold transduction in normal individuals and in a different section, mechanisms of cold sensitivity in neuropathic pain. Chapter ten provides a particularly lucid and engaging description of mechanisms of tactile allodynia. The use of diagrams and tables throughout the book is liberal but helpful.